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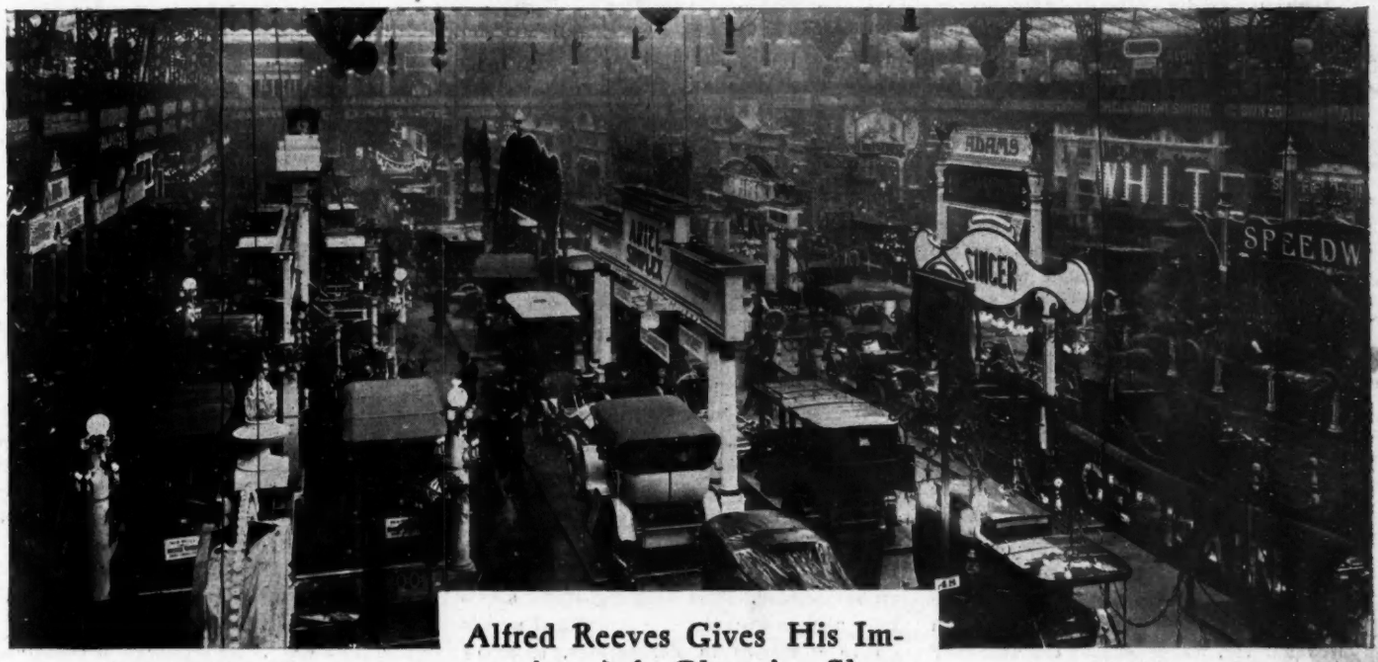
MOTOR AGE

MOTOR CAR PROGRESS AS SHOWN AT OLYMPIA



OLYMPIA IN FULL DRESS

ENGLAND'S GREATEST SHOW

Alfred Reeves Gives His Impressions of Olympia Show

LONDON, Nov. 16—That the strongest tendency is toward the small car here as in America; that the changes in the 1908 models, both French and English, are in matter of detail, the makers apparently being willing to fall into conventional practice; that it is a battle for lightness in construction, and the total absence of the three-seated runabout so popular in America, are some of the impressions gained by two Americans after a careful study of the big motor car show now in progress at Olympia. The exhibition is twice the size of those at Grand Central palace or Madison Square garden, New York, and greater than the Chicago show.

From our English cousins we can learn a great deal, and, in my judgment, it is a grave mistake for American makers to neglect sending a representative to visit this show. On the other hand, there are many things which, without egotism it might be stated, John Bull could learn much from our shores, particularly about our methods of doing business. There are 140 motor car manufacturers exhibiting 545 different models at Olympia, in a building built somewhat like the garden but about twice the size. Although individual decorations are in order at this show, and certainly add to the artistic appearance, it is pretty generally understood that next year will see a uniform decoration of all the spaces, just as we have in America.

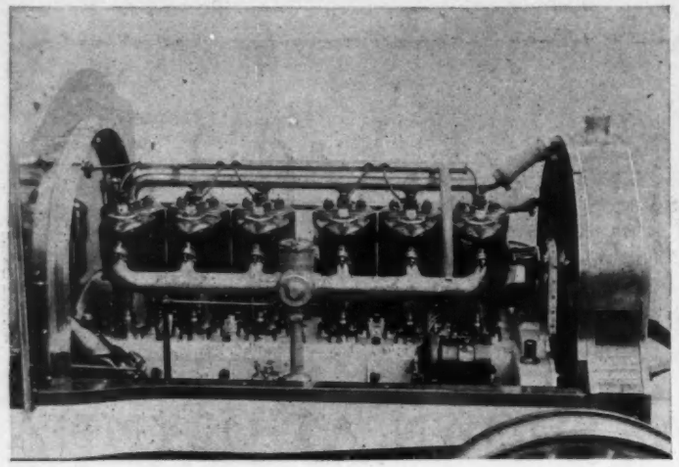
While there has been some reduction in prices, as forecasted months ago, it has mainly affected the big cars. The trade outlook here is very good, although nothing of a boom nature. There has only been a slight falling off in attendance, and the feeling among the dealers is one of conservatism but not pessimism.

In my travels about the show I had the council of Howard C. Marmon, of the Nordyke & Marmon Co., who, besides being the designer of the Marmon car, is a member of the technical committee of the American Motor Car Manufacturers' Association. Other Americans at the show include Howard Coffin, of the E. R. Thomas company, and Russell Huff, of the Packard Motor Car Co. That pioneer in the invasion for American trade, John L. Poole, is at the show looking after Buick interests. The only other American cars shown are the Ford, White and Cadillac.

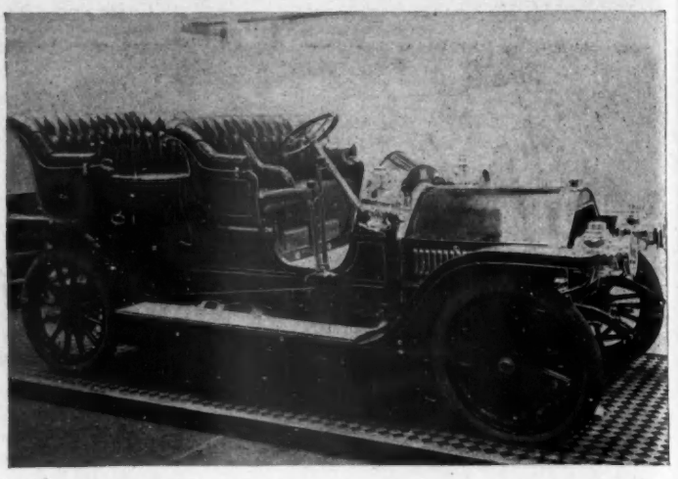
This article will hardly deal with the general details of the show, but is just a record of the show exhibits as they impressed the American.

It is absurd for us to blind our eyes to the fact that the demand is on for the small car, especially those of 15 to 20 horsepower, and selling at less than $2,000. No one denies that there will always be buyers for the big high-priced cars, which certainly have had a rage for some years, but just now the buyers seem to favor the small machine. The popular car here and the one greatest in favor is the one of 10 to 12 horsepower having a four-cylinder engine and with a body made to carry four persons. It is peculiar that the only runabout with a rumble seat, so universal in America, is at the Buick stand. There has been apparently a great effort to reduce the weight of cars and students of motor car construction are of the opinion that this tendency will continue.

In a booth-to-booth examination Mr.



DELAUNAY-BELLEVILLE'S SIX-CYLINDER 40-HORSEPOWER ENGINE



SIDE ENTRANCE 20-HORSEPOWER CAR MADE BY HUMBER

Marmon and myself were impressed with certain tendencies from an American point of view, some of which might be of general interest. Among other things we noticed some advances in the use of the motor as a brake; the almost total disappearance of cone clutches; an effort at reviving the front drive for town cars; a decided improvement in coach work and conveniences for passengers; the use of tubular front axles on many English cars; adjustable foot pedals; a ratchet sprag on the transmission; the use of a brake on the transmission; the placing of the crankcase in the frame without the use of arms integral with the crankcase; three-fourth elliptic springs on the rear; larger brakes and grease cups on ball and socket steering joints; hand adjustment for brakes; the casting of all four cylinders in one on small cars; the use of the thermo-syphon system on town cars; a change in the carbureter, which locates the auxiliary air valve on the manifold instead of on the carbureter; the exhibiting of a shaft-drive car in every space at the show except Mercedes; the inclination to increase rather than decrease the present long wheelbase; the use of three bearings on the transmission shaft; an increase in the use of shock absorbers as general equipment; an unlimited fancy in regard to the design of radiators; a growing practice to leave off the spark adjustment on the steering wheel; a comparative lack of interest in self-starting devices, there being only two cars using it as regular equipment; and a tendency to have as little as possible on the dashboard.

There is the ever-apparent English design made on the lines of practicability rather than looks and the thorough workmanship of the English mechanic. One is impressed with the air of business that permeates the atmosphere of the Olympia. There is very little attention paid to general decorations, such as mark the American shows. Some plain red and yellow bunting and a few additional arc lights are all the general decorations, although many of the individual stands show artistic tendencies that catch the eye and make an impression. The building itself seems bare and barren, but the individual stands go to extremes in decorations, some of them costing as much as $6,000 to fit up for the present show. Everybody seems to be there for business. There is no strict rule against putting signs on cars, and everybody smokes religiously and now and again retires for a drink of tea or something else of a similar color.

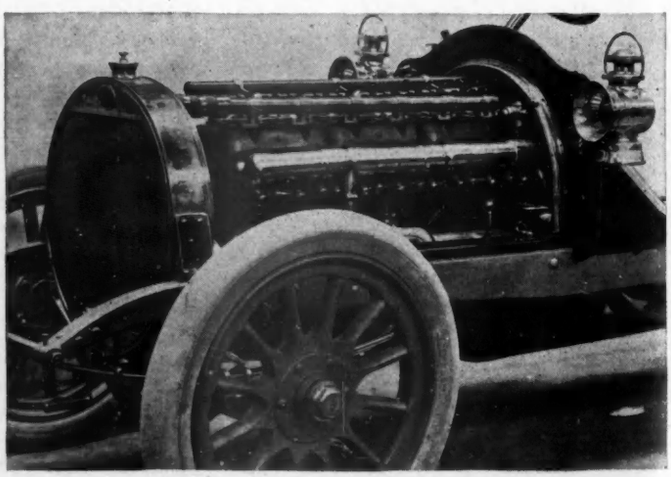
So far as London itself is concerned the battle is on between the pleasure and the business motor. The former has had its rage and in the opinion of many has settled down to a good business basis. The cry is on now for the commercial vehicle, and here we find everything from the taxicab, of which there are about a thousand in London, and the double-decked motor bus carrying sixty or seventy passengers, to the traction engine hauling four or five carloads of coal.—Alfred Reeves, General Manager American Motor Car Manufacturers' Association.

ROYALTY OPENS THE SHOW

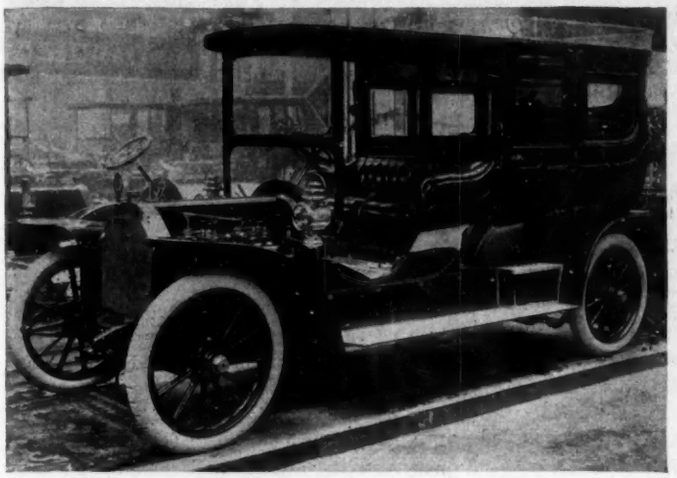
London, Nov. 15—The sixth annual motor car exhibition of the Society of Motor Manufacturers and Traders, under the patronage of the king and the prince of Wales, was opened at Olympia yesterday by the prince of Wales, this being the first time the show has not opened itself. This year's exhibition remains open a full fortnight, whereas last year it was only open for 9 days. As on previous occasions, all chief European makes are shown, including Napier, Rolls-Royce, English Daimler, Humber, Rover, Argyle, Panhard, Mercedes, Renault and countless others, while America is represented by the Ford, Cadillac, Buick and White.

Several innovations in design have been made, notably the introduction for the first time of live axle models by the Panhard

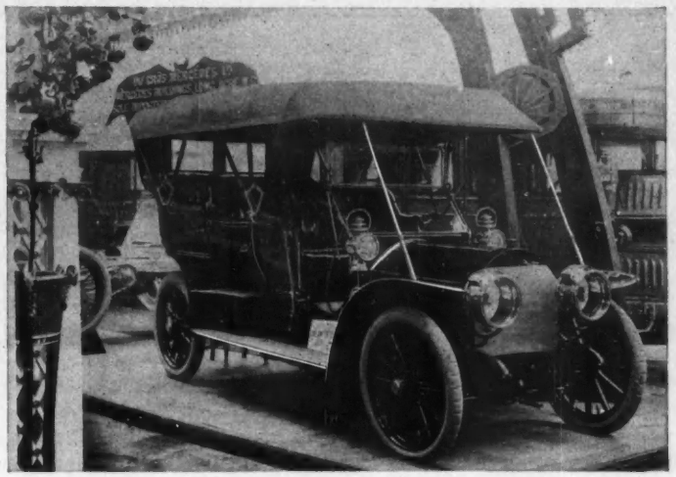
DAIMLER'S IDEA OF A 1908 TOURING CAR



VIEW OF M. M. C. SIX-CYLINDER ENGINE



VINOT LIMOUSINE OF 24-32 HORSEPOWER

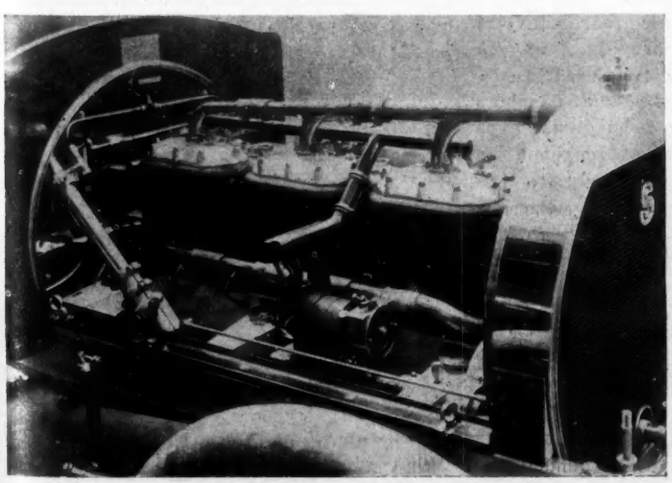


BIG MERCEDES WITH KING OF BELGIAN BODY

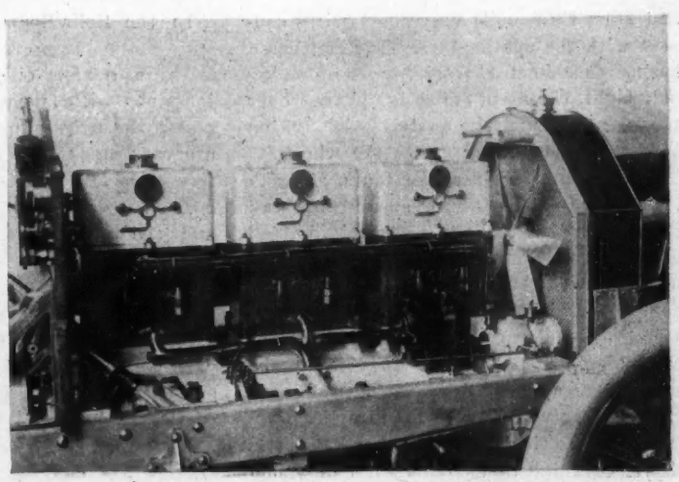
and Daimler concerns. One of the prominent features of the show is the tendency to discard chain drive except in the largest powered models, but in those cases where this power of transmission is retained chain cases are fitted, thus bringing chain-driven cars nearer to the standard of pittance of live axle ones. The value of the cars on view has been estimated at $1,750,000, of which British cars represent $930,000, or considerably more than half. France shows half as much as England, Italy coming next, a long way behind with a value of $100,000, with Germany, Belgium, America, Holland, Switzerland, Saxony and Spain trailing behind in the order mentioned. The Spanish exhibit is the Hispano Luiza car, shown for the first time at the last Paris salon. One of the most attractive exhibits is that of the Napier cars, the recent reduction in price and the wonderfully successful season of this make in competition having resulted in a large influx of orders. The new 30-horsepower six-cylinder model is a delightful piece of work. Two exhibits which are always surrounded by admiring throngs are Prince Borghese's Itala, which won the arduous and hazardous Pekin-Paris contest and the little 15-horsepower two-cylinder de Dion, which also came through successfully in the same event. A new car is the B. S. A., made by the old established gun and cycle manufacturer, the Birmingham Small Arms Co. One of the notable features of the car is the good system of forked joints adopted in the steering gears. Another is the valveless car shown for the first time. As its name indicates, the engine has no valves. The engine is a two-stroke, the pistons working simultaneously in a single cylinder, the pistons being separated by a wall extending upwards for a little beyond the height of the working stroke. No gas enters the crank chamber for the preliminary compression, only air passing down, and this never reaches more than 5 pounds or 6 pounds pressure. The gasoline passes down a pipe, but is intercepted by a diaphragm that opens on each suction stroke of the engine and admits air and the fuel as a more or less rough mixture to the cylinder. The crankshaft carries on the exterior of the crank chamber two large flywheels, which revolve in opposite directions, so that balance of the driving thrust from the crankshaft is insured. The car possesses several other novel features and is one of the attractions of the show. Two interesting cars are the six-cylinder Hotchkiss and Rolls-Royce, each of which recently concluded a 15,000-mile officially observed reliability trial. The parts of both cars are shown and give evidence of remarkably little wear, both productions offering excellent testimony for longevity of the modern car.

One of the sensations of the show is the 10-12-horsepower four-cylinder Humber. This is a wonderful little car, having many of the refinements only to be found on the most expensive makes. It has a comfortable side-entrance body. There is no shoddy work about the rig such as characterizes many other so-called cheap cars. The Argyle Co. shows a new 40-horsepower model. This is one of the cleanest pieces of work seen for some time. The cylinders are cast in pairs and the gear box is of entirely new design, four speeds being provided, the third being direct. On many cars an additional speed is the practice this year, which is surprising considering the increased flexibility of the average engine. A novel feature in the Argyle is that the whole of the differential gear case can be easily removed without disturbing the axle or the wheels, while another point is the accessibility of the mechanism.

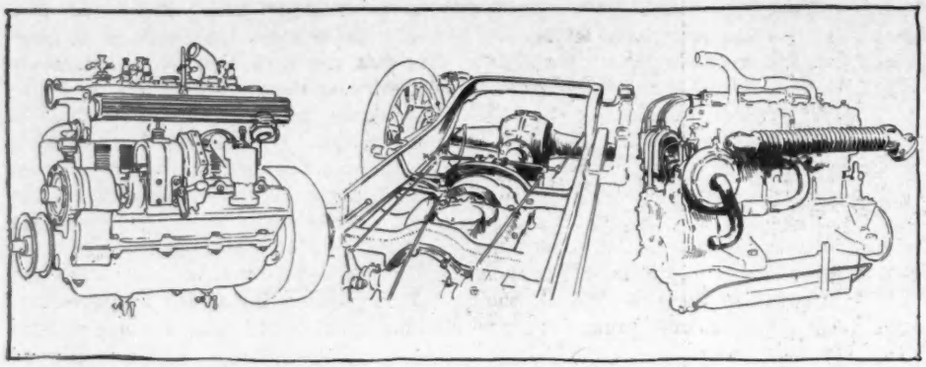
The attendance so far has been splendid, last year's figures being easily surpassed, even allowing for the extra time the show is open this year. Business has not been so brisk as in former years, but as the makers did not expect it would be no one is very much disappointed. An interested



SHEFFIELD-SIMPLEX SIX-CYLINDER MOTOR



GOBRON BRILLIE 70-90-HORSEPOWER SIX-CYLINDER



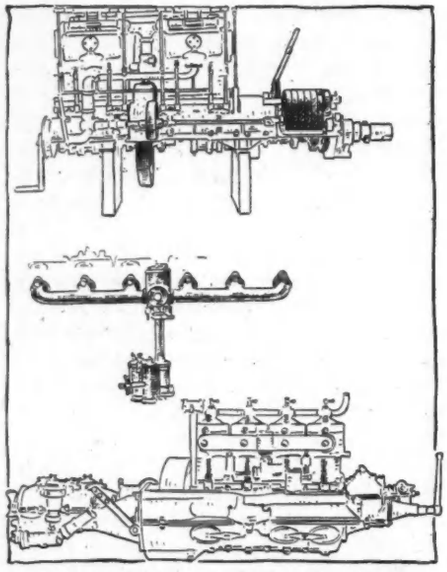
FOUR-CYLINDER DARRACQ PANHARD GEAR BOX SUSPENSION THORNYCROFT ENGINE

visitor has been Alfred Reeves, who came over with the object of preparing the ground for an American invasion, but after what he has seen at the show home concerns do not think anything will come of the matter. There seems to be an impression in America that England is one of the most backward motor manufacturing countries. When Mr. Reeves returns he will be able to dispel any such illusion, for the best British cars have no superior anywhere. So much Mr. Reeves has admitted. As the British maker has specialized to a large extent on the small car, it is confidently felt that an American invasion could be successfully met.

In the avalanche to shaft drive for lower powered cars and to the enclosing of drive chains in high powered cars the English Daimler stands first. New in the chain-driven cars is the employment of worm drive from the shafts of the gearset to the jackshaft in place of bevel gears and pinions. On the ends of main and counter shafts in the gearset are worm gears constantly in mesh with other worm gears on the jackshaft, so that the worm gear on the mainshaft is for direct or top speed and the worm gear on the secondary shaft for the other forward speeds and reverse. The chain case in this car is made in three parts, two removable end pieces—semi-circular in nature—which when removed allow of inspecting the chain. In the ignition system are four non-vibrating high-tensioning coils carried in a tubing over the cylinders, one coil over each cylinder, and from these coils very short wires connect with the spark plugs. The fan has a spring tension for retaining the driving belt tight, the main frame is upswept over the rear axle and the switch is located on the steering column beneath the wheel.

Napier cars in sixes and fours, all with shaft drive exhibit improvements in detail as compared with the last Olympia, but all of these are forgotten, due to the presence of the new 30-horsepower six-cylinder car, the importance of which indicates the trend of makers to low-powered rather than high-powered sixes. It follows the standard Napier design, but has an auxiliary air valve added to the throttle. Dennis cars, so long associated with worm drive, continue to use this form of transmission between the propeller shaft and rear axle. The engine is a redesigned product and conspicuous on it is a two-pump lubricating system, one pump for delivering the oil from a reservoir carried under the car frame to the motor and other bearings, and another to return this oil from a pump in the crankcase to the oil reservoir, both of the pumps being gear

MOTOBLOC ENGINE AND TRANSMISSION



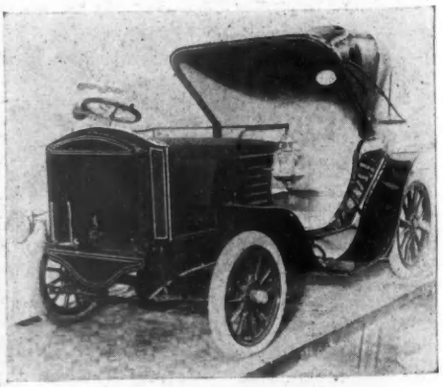
DELAUNAY-BELLEVILLE SIX MANIFOLD ARMSTRONG-WHITWORTH ENGINE

driven types. The transmission has been altered to allow of the countershaft remaining idle on direct drive.

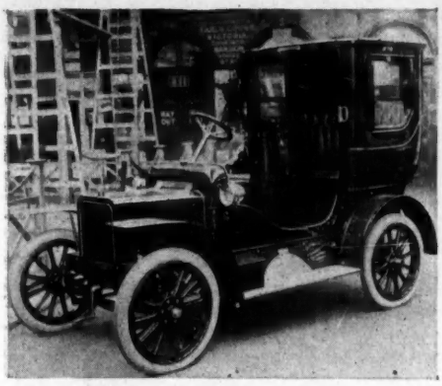
In the Rolls-Royce the rear platform spring used heretofore has given way to the three-quarter elliptic type used in conjunction with upswept frame members above the axle. Compression grease cups are very much in evidence throughout the running gear, thanks no doubt to the 30,000-mile non-stop run made by the car, and the forward universal joint in the propeller shaft has oiling accommodations for 1,000 miles. In order to secure an even application of the brake shoes on the drum these are supported on a pendulum device whereby the brake engages evenly throughout its surface, irrespective of the amount of wear it has received.

While all of the different gasoline makers are copying one another and attempting to excell in chassis design and body finish, the Lanchester cars continue in their own characteristic way. The four and six-cylinder styles have the motors mounted along the center line of the footboard, so that the driver sits at one side of the cylinder and his fellow passenger at the other side, this location eliminating the forward bonnet and making it possible to carry the entire weight of the car between the front and rear axle. The company continues the use of its wick carbureter and in its quest to reduce the engine width has located the camshaft directly beneath the crankshaft. Arrol-Johnston cars, which were ushered into prominence 18 months ago by the winning of the first Tourist trophy race, are shown in two designs, one motor with intake and exhaust valves opened by an uplift, and a new model with the intakes located above the exhausts and opened by a down movement. These cars use Hele-Shaw disk clutches, G & A carbureters, Simms-Bosch magnetos and a de Dion oiling system, which is altered this time by being located outside of the crankcase, where it is more accessible. It pumps the oil from a basement in the crankcase to the various motor bearings. On the dash are oil gauges for showing the gasoline supply as well as the quantity of oil in the crankcase.

Of the multitude of other English cars familiar to American readers perhaps the Argyle stands first because of its many excellent showings in reliability runs. The improvements in the car consist in the substitution of a rear platform spring in place of side semi-elliptics, using detached water jacket head covers, reforming the motor lubrication by eliminating a detached multi-feed oiler and placing a sump in the crankcase from which a gear pump delivers the flow through sight feeds on the dash. A particularly neat job has been done in the new Thornycroft motors of the 30-horsepower type by the casting of cylinders in pairs, with valves mounted oppositely. On a cross shaft in front of the forward cylinder pair are the magneto at one end and the centrifugal water pump on the other end, the design calling to mind that introduced a couple of seasons ago on Renault cars. The exhaust manifold is surrounded throughout its length with circular cooling flanges. Lubrication is by an enclosed crankcase system with gear pump,



FRONT-DRIVING PILAIN CAR



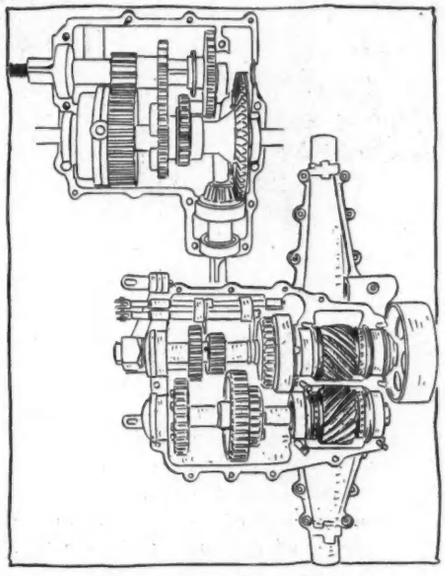
DOCTOR'S COUPE—A ROVER

the oil leads coupling from the pump with the motor bearings. The six-cylinder motor follows much the same design as employed in the four. Gregoire cars are made and shown in all sizes from an 8-horsepower single-cylinder style up.

Rover cars, which came into prominence by winning the 1907 Tourist trophy race, use a three-point suspension for the motor and frame, introducing as the company does the transverse front spring placed directly above the front axle. An effort has been made to increase the accessibility of the valves by carrying the induction and exhaust manifolds well out from the cylinder sides. Engine clutch and gearbox casings are bolted together, forming a unit casting. The Adams-Hewitt still continues the use of its planetary transmission, as it does its eight-cylinder motor, with cylinders mounted in two sets of four, much as done in Marmon air-cooled cars. A new four-cylinder car with vertical cylinders is shown. Benthol cars attract attention in that they use propeller shaft drive, but have eliminated entirely the universal joint. The clutch is a hard fiber member running in oil. In the spring suspension of Sunbeam cars vertical horn plates are used to prevent the car body rolling sidewise when rounding a corner.

Porthos cars differ from many others by the employment of a solid live rear axle, one of the rear road wheels driving through this and the other through a sleeve surrounding it. The West-Astor is one of the many small cars, 12-16 horsepower, to have its four cylinders cast en bloc—in one casting—and for a small car is a remarkably well made machine, using ball bearings all through and having a gearbox giving four forward changes. The Gregoire cars employ a ball bearing crankshaft for the first time, use thermo-syphon water cooling, a two-jet carbureter, and in the 10-14-horsepower model have the cylinders cast en bloc. Humber cars are altered by the addition of a de Dion oiling system; which system, by the way, has made enormous strides during the past 12 months, many makers preferring its simple gear pump to the more complicated multi-feed oilers. Gladiator cars are among those to replace their semi-elliptical rear springs with three-quarter elliptics, and in the Deasy cars is retained the armored wood frame. The British-made Mercedes is shown in four and six-cylinder styles and now uses metal spokes in the artillery road wheels which are fitted. The car caused considerable talk at thes how.

On the Brown cars is continued the use of governing motor speed by varying the lift of the intake valves, this method having been used by them for a long time and having given apparent satisfaction. On the B. S. A. cars magento ignition only is employed, whereas the majority of other cars use a magneto and accumulator system. On the six-cylinder Brooke the changes are confined to the addition of a de Dion oiling scheme. Novel in the B. S. A. cars just mentioned is the locating of the carbureter in the open space between the front and rear cylinder pairs so that induction pipes are eliminated, the carbureter sitting very closely to the cylinders and the throttle being placed between them by the designer.

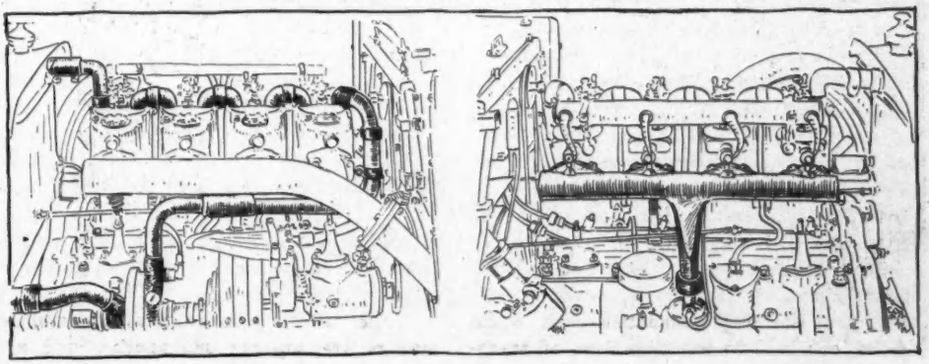


SHOWING THE SKEW DRIVE

Of the few English steam cars on exhibition the E. J. Y. R. is noticeable in that it houses its flash generator and three-cylinder vertical motor under the bonnet and drives to the rear axle through a propeller shaft. Its make-up includes a clutch by means of which the motor can be run without the road wheels rotating. The generator contains nine coils of tubing, the diameter of the bottom coil being less than that of the upper coils. The burner is a twelve-nipple style. In the N. E. C. gasoline cars the vertical-cylinder motors are placed under the front seat and the frame is centrally dropped, thereby making the center of gravity extremely low. Locating the motor amidship removes the forward bonnet and places practically all of the car weight between the axles. The cars are extremely smooth-riding vehicles and very easily handled. On the Bell cars is an overfeed lubrication device for the prevention of too much oil reaching the motor parts and causing smoking. The oil is pumped from the oiler through sight feeds on the dash and all excess oil is returned to the oil reservoir by a bypass channel, a valve regulating the amount delivered to the bearings.

In Clyde cars the motor is mounted transversely of the frame under the front seat and power is transmitted through silent chains to the gearset carried on the rear axle and driving thereto by spur gears. In case of the cars with long wheelbases a transverse countershaft is placed near the center of the car. In the Courier and Wasp cars remains about the only example of where the auxiliary air valve in the carbureter is controlled by a Mercury dash pot. Duplex cars are about the only two-cycle exponents and since last seen at the Olympia they have been altered in that the gas does not now enter through a valve in the cylinder head, but by way of a port to an outer valve on the left-hand side of the cylinder. The 12-horsepower Iden drives and steers through the front wheels. The engine is placed beneath the front seat and the gearbox is in front of it, and thence power goes through a short propeller shaft to the axle. Braking is through the front wheels only.

The Speedwell locates its transmission on the centrally dropped dead rear axle, being in this respect an imitation of that style used on de Dion cars and now found on the light Darracq car. In the propeller shaft is a spring drive used to relieve the tires of too fast clutch-engaging strain and in turn to save the motor from too rapid brake application. Minerva chassis in four and six-cylinder models employ regularly the G & A carbureter with its auxiliary air valve, consisting of different size balls that guard air passages and are lifted off their seatings by the different motor pulls.



LIVE AXLE PANHARD CAR ENGINE

PARIS SALON GREATEST OF FRENCH SHOWS

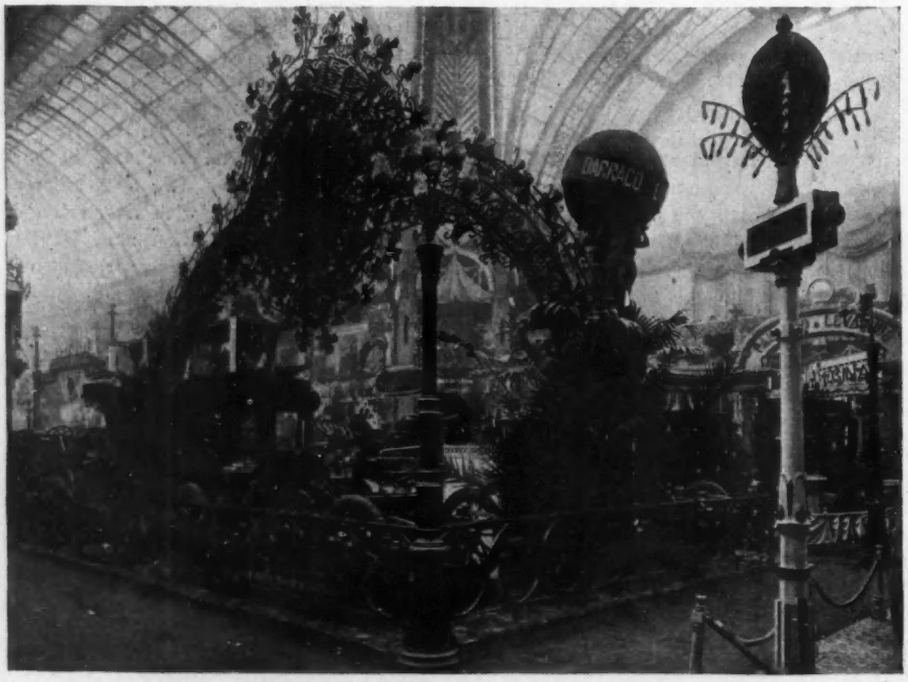
VIEW IN FRONT OF THE GRAND PALACE, IN WHICH THE PARIS SALON IS BEING HELD

PARIS, Nov. 12—The united energies of the whole French trade are represented in the tenth annual exposition which opened its doors today. As natural in this, the greatest show of its kind, the exhibits and exhibitors are more numerous than ever. The floor space covered by stands is 40,000 square meters, against 28,000 in 1906. Fourteen hundred and three exhibitors display cars and material to the value of $8,000,000, and there are 300 foreign concerns represented, as against the 200 last year. Eleven hundred French houses are showing goods, an increase of seventy-five over last year.

Through the turnstiles it is hoped that some half million persons will pass, and the mighty effort which is to restore prosperity to the majority of French houses—for it is well known that the crisis has hard hit even the greatest—is calculated to bring home orders to the value of $30,000,000. In the normal course of affairs this figure would be well reached, and undoubted efforts are being made this year to loosen the purse-strings of the rich customers, French and foreign, who all come to see, examine and comment upon the finest of French industrial art.

The French president, as usual, made a conscientious round of visits this morning and then everyone set to work. Everything is not in working order, for the salon is nearly a month ahead of its usual date, but to do the organizers justice things are well advanced on the opening date.

A glance around the stands shows that some use has been made of moving models to represent the principle of this or that make. This is a happy idea, though not entirely new here. The de Dion people show a working section of a car, with all the essential parts at work, which attracts a deal of attention, as does the glass casing of the Brillie motors, which permits the double piston type of motor to be appreciated to the full. Some concerns show moving models of their differential gears, and the numbers of show chassis marked "not to be touched" has decreased. There are, of course, plenty of polished chassis, but more of the exhibits approach closer to what would be handed over to the customer in exchange for the price marked than would have been a year or more ago. Thirty-four makers have gone in for the six-cylinder variety of car, of which there are fifty-four on view, but the drop in favor of the high-powered car has limited the enthusiasm for these. There is a large number of two and four-cylinder cars, and even the monocylin-



GORGEOUS DECORATIONS ON THE DARRACQ STAND

INSIDE THE FRENCH SALON—AN IDEA OF THE GENERAL APPEARANCE OF THE SHOW

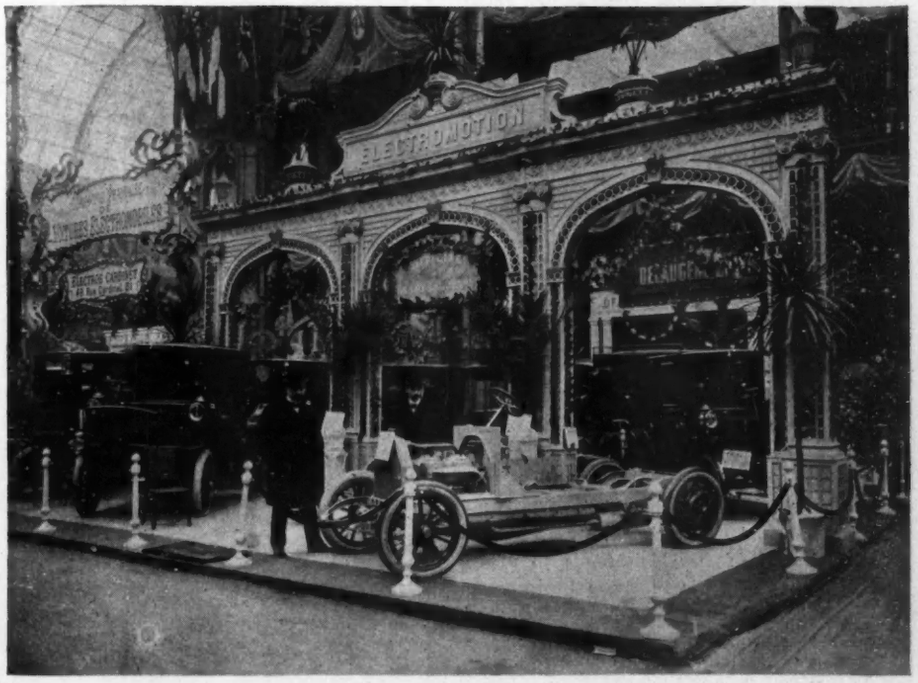
der voiturette is strongly represented. It would seem that the best value for money in French output may be obtained by the purchase of a four-cylinder 16-20 or 20-30-horsepower chassis, or even something slightly less; that is, if any indication at all can be gleaned from the figures quoted by the exhibitors. The prices of cars have not sensibly decreased, and it would seem that, unless competition becomes more strenuous, rock bottom has been reached in many cases. The very cheap cars on view, and there are not many, are nasty as well as cheap, and the real cheap and popular car has yet to appear.

Interest in the purely electric car appears to have disappeared, since all the concerns are now going in strongly for the gasoline car, either introducing a gasoline-electric or mixed system, or boldly sticking to the gasoline car. Thus there are several varieties of gasoline-electric systems to compare, and some of them appear to be well studied out and simple to operate.

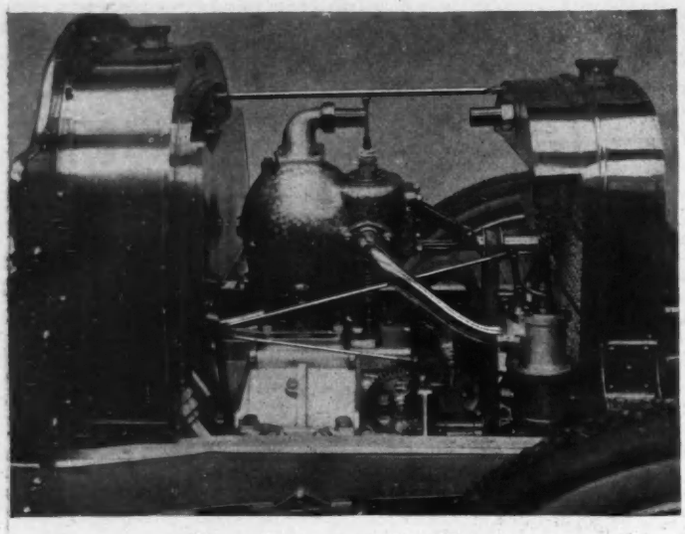
The battle between chain and shaft still wages, and although the tendency is marked to use shaft-drive for small and moderate-sized cars, it is to be seen on large-powered cars also, while chains are found on small cars, too. Chain covers are making but small progress and few models are to be seen thus fitted. The Mercedes, Westinghouse and Charron fit them, however.

No one expected to find many novelties at the 1907 show. There is sufficient diversity in types of cars and details of construction to prove that the various principles involved are sound and it is unlikely that much further standardization will take place. It has been stated that a further attempt at simplicity has been made, but while this may have been aimed at, with the increasing complexity of details and applications, such as the power pump, automatic air compressors and automatic starting devices, it is not likely that much more simplicity can be achieved.

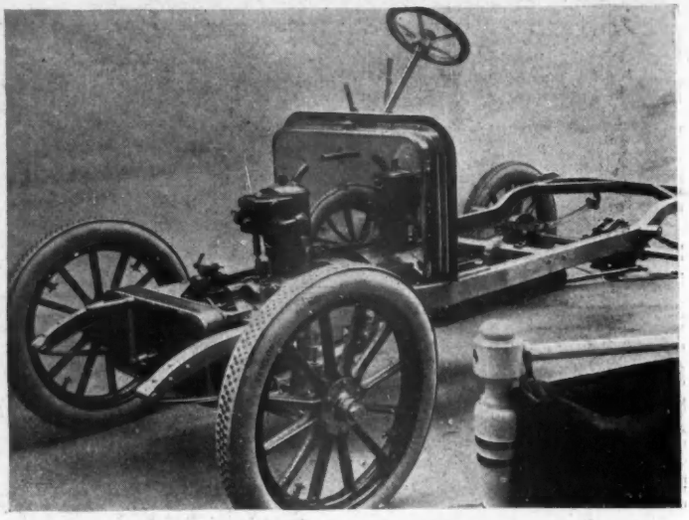
There appears to be but few departures from standard practice on the part of well-established concerns, and whether this is a good or a bad policy time alone will prove. Thus it is that one finds novelties rather among the newcomers in the trade, and this is as characteristic of the present salon, and it is the fact that one or two of the concerns, well known as they are, are not entering the active advertising campaign, which again is a feature of the show, for catalogues and descriptions are more in evidence than in former years.



STAND IN THE SALON OCCUPIED BY ELECTROMOTION PEOPLE



MOTOR USED IN THE LION PEUGEOT



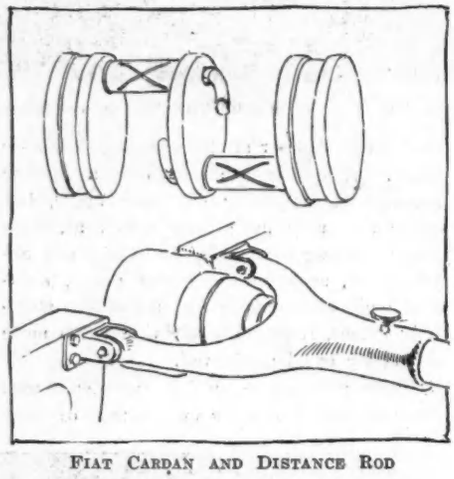
CHASSIS OF THE SARSE SARTOUT

The pressed steel chassis is seen on all hands now, at least on everything which is not dubbed voiturette. The tubular frame has quite disappeared. Cone clutches with leather facings are fast giving way to the multiple disk variety. Some models are shown with four speeds, but the general tendency is to supply but three. There is no marked change in radiators, either in position or form. Some people consider that the casting of all four cylinders in one block is becoming general. The present salon cannot be a criterion of the tendency, since valid statistics on this detail cannot be gleaned from anyone; in fact, statistics of any sort from an annual show are apt to be misleading. It is certain, however, that there are large numbers of motor groups which have their cylinders, either two, four or six, all cast separately. High tension ignition is gaining ground, with accumulators as reserve. Low tension systems are not so much in evidence. In the gearsets great attention has been given them, and the size of the gearboxes has decreased, adding neatness to the appearance. One idle shaft only is pretty general, and two direct drives are noted. Braking by means of pure air into the motor is being seen on several models, the Panhard employing it among others.

The use of cast steel is less in evidence, and the marked tendency of several makers to use special alloys for certain parts of the motor group has not gained ground, and is less insisted upon. Soundness of design and care in execution is more to be seen than ever before.

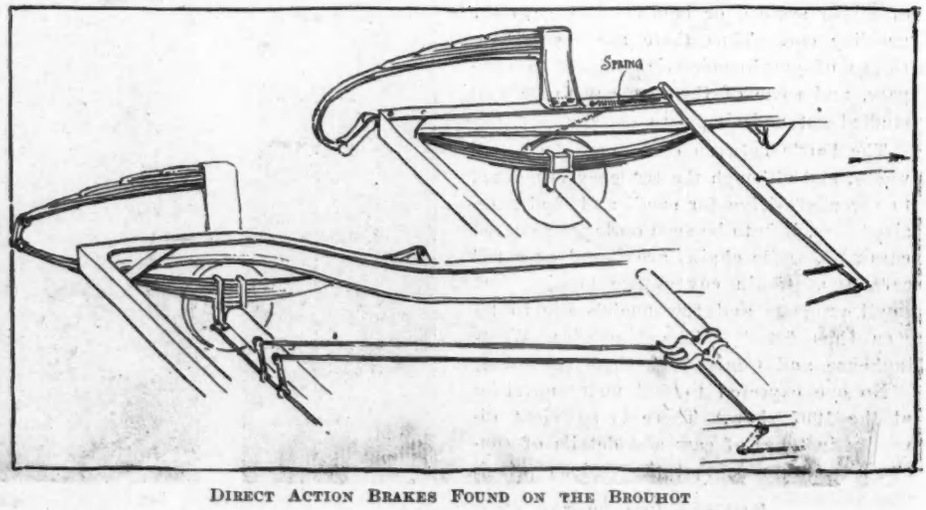
The Sizaire & Naudin, the winner of the coupe des voiturettes, attracts immense crowds. Last year the type of car shown was almost untried and was a novelty. This year the makers state that their 1908 production was sold out during the first 2 days of the show, a fact which tends to prove the fact that there is immense business to be done in the small car line, when the small car is well studied out. This make does not present any novel features this year. The concern has tried a larger cylinder, but the type is not yet commercially produced. Some small changes of detail are made, but the car remains what it was, with its light wooden chassis, single transverse spring in front and two quarter springs over the rear wheels. The type stands out this year as a step in the progress of small car construction, and is a standing proof of the wisdom of the originators of the car that a voiturette should be built on original lines and not a reproduction in miniature of the larger car. Thus the price of the design. An addition to this model consists in a self-starting device, situated below the driver's footboard and operated by means of a pedal. It includes a worm-gear acting on the motor shaft by double reduction. It is a neat contrivance, with a bronze casing, and is considered an improvement over the compressed air variety of self-starters, or combined electrical starters with or without the use of compressed air, which were seen at the 1906 show and which have almost entirely disappeared in this. The Sizaire car is maintained, in spite of the fact that the great Darracq is offering a 10-12-horsepower two-cylinder car at prices not much greater than that of the small voiturette. But, as before stated, the matter of prices is not a serious one this year at the French show, for there may be many changes before the first car is delivered to the customer in the coming year. Taken as they are, however, prices are little if any lower than those obtaining in the past season on the continent.

S. C. A. R. CRANK OILING SCHEME

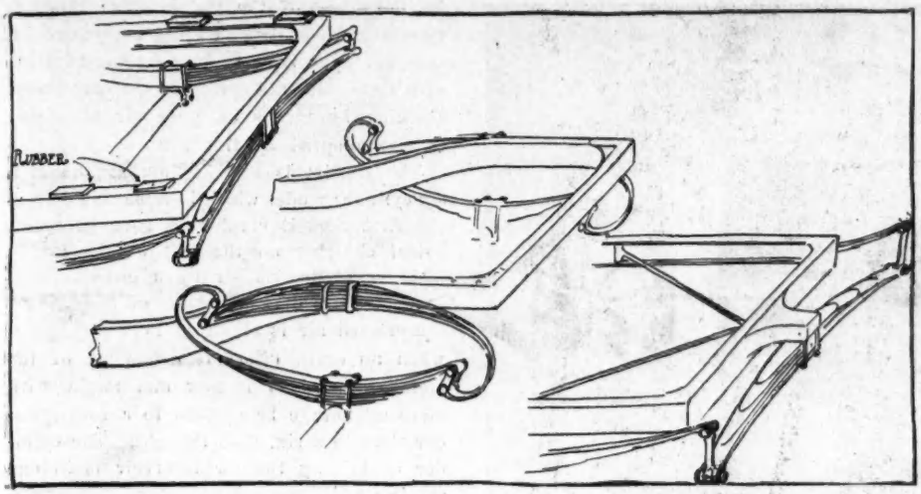


FIAT CARDAN AND DISTANCE ROD

As far as changes in the Renault design are concerned, it may be stated that there are none. The concern is putting some small city chassis on the market, a 10-14-horsepower four-cylinder, with all the usual



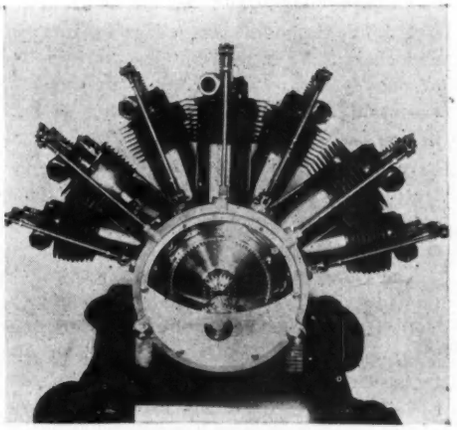
DIRECT ACTION BRAKES FOUND ON THE BROUHOT



CHARRON, LA BUIRE AND DELAUNAY-BELLEVILLE SPRINGS

characteristics of the house's well-known Renault, however, fits the compressed air starter to its larger models.

The Panhard stands to its guns in respect to the strengthened wood chassis, and is showing one or two examples of the admirable carosserie attachments which can thus be obtained. There is nothing strikingly new in the Panhard designs, but the elegance, simplicity and excellence of workmanship shown this year maintain the reputation of the firm. The chain cover first shown last year by Charron is evidently a success, since the makers are fitting it again this year. An innovation is found in the casing of the steel chassis, to which ash, or at least a top layer of ash, is added, on which, at intervals, are fixed blocks of soft rubber 4 or 5 inches long and extending the whole section of the frame bar. This is to add an additional easy riding to the bodywork. A large C spring is fitted to the rear wheels from which the chassis is suspended by a vertical rod shackled to the top extremity of the spring. This concern shows a four-cylinder model with cylinders cast in one, and another model with four cylinders cast separately. The new 90-horsepower chassis attracts attention, if only by its light weight of 2,352 pounds. The cooling jackets of copper are designed in ample proportion. If the gasoline cars have nearly reached finality, then the electric cars have been entirely standardized, judging from the examples on show. However, the makers of electrics have not yet had their last word, for those who do not show a



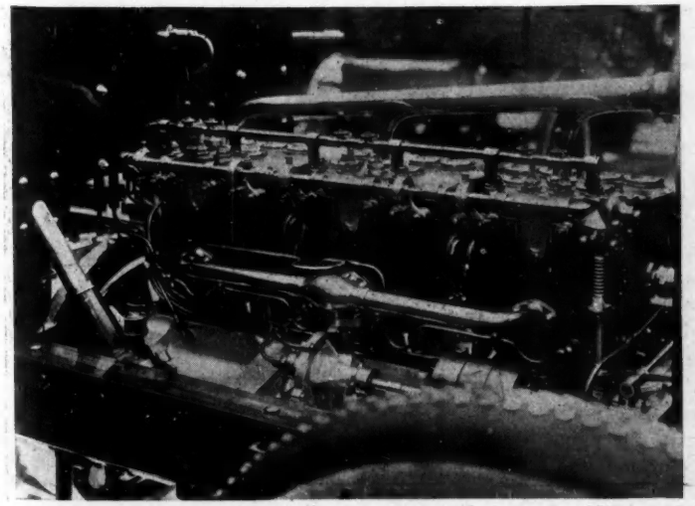
PECULIAR MOTOR—THE ESNAULT

gasoline-electric mixed chassis are pushing an entirely gasoline car. The Electromotion concern has on show a very creditable mixed variety of car, with one lever and two pedals. The gasoline motor is a Westinghouse type and the usual advantages of this drive—that is, absence of speed, changing devise and facility in operating—are claimed.

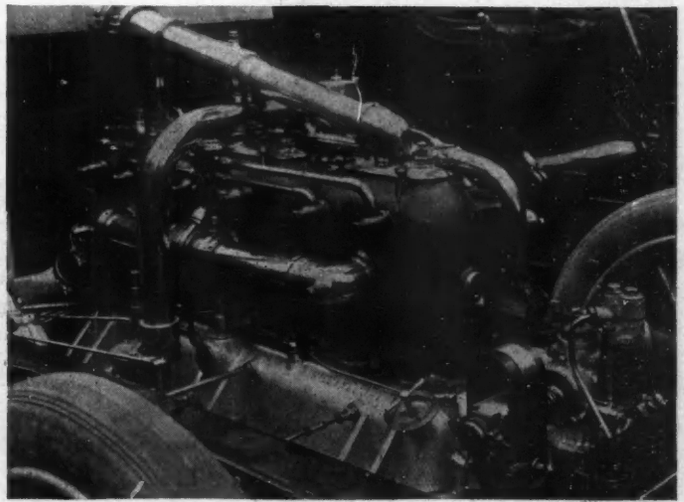
The Gem is attracting a deal of attention this year. The maker shows a gasoline-electric type of car, the motor being coupled behind the motor group. A cardan shaft carries the transmission to the rear wheels. There are no levers at all and the car is operated entirely by two pedals. A very simple and robust construction is the result and the machine would be hard to beat in its class. It is built by the Ste Generale d'Automobiles Electro-Mecaniques. The car presents the peculiarity of having no levers to operate, no speed changing device, no starting lever, and the drive is, of course, always direct. The gasoline motor is calculated to give a certain output, insufficient to carry the car quickly up steep hills. It is here that the motor comes to the aid of the explosion motor, fed with current at 25 amperes, 50 volts from a twenty-four cell Tudor battery. On descending the hill, or when the dynamo is not wanted, it acts as a recharger for the battery. An automatic speed regulator of the motor-dynamo is provided.

In the Pilain the well-known robust construction of these light cars is followed out. The operating gears are herringbone pattern, thus ensuring noiseless operation. The Chenard-Walcker is closely studying the details of its cars, and its V shape distance rod, with the apex of the V just behind the gearbox, is a neat contrivance. Most concerns have but a single distance rod, but others have bar stretchers for each rear wheel similar to those used in the chain models. The same house shows a system of rigid leads for the sparking plugs in the ignition system.

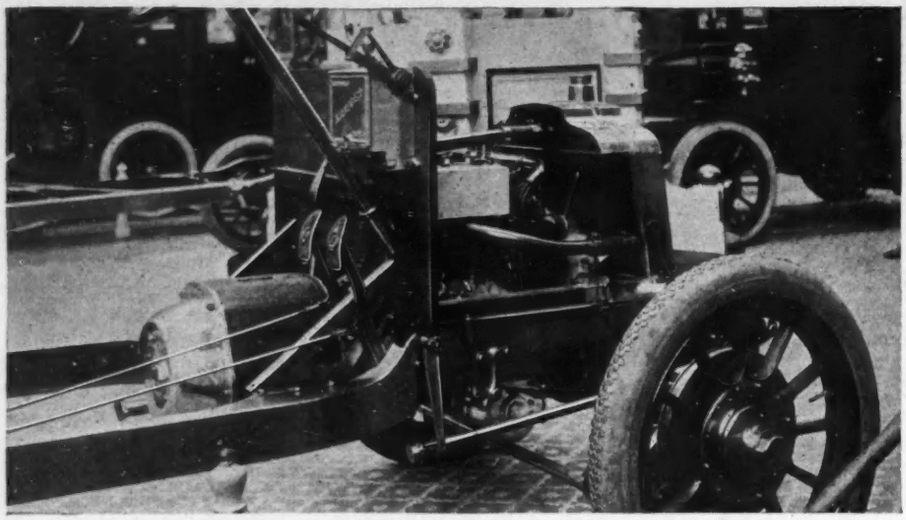
The Brouhot is another which is giving attention to braking details. The tendency this year is more than ever to use rod transmission and flexible cords are losing ground. The Brouhot brakes on the rear wheels are of the drum pattern and an equal and direct pull is obtained by means of an equalizing rod, which is held in the middle of the chassis by a central rod connected to the



BRASIER'S IDEA OF THE SIX-CYLINDER



RENAULT'S 50-HORSEPOWER ENGINE



CHASSIS OF THE KRIEGER MIXED TAXIMETER CAB

brake pedal. Two other very efficient drum brakes are provided on the transmission rod of this chain-driven model. There are thus two systems of brakes in duplicate.

The Reims Construction Co., manufacturing the S. C. A. R. car, shows one or two novelties. The oiling system is automatic and needs no attention for at least a run of 300 miles. This is obtained by means of scoops ending in tubes fixed to the motor cranks. The scoop, of course, revolves with the crankshaft, and as there is a scoop for every cylinder crank a sufficient pressure is obtained in the connecting tube to provide an efficient oiling system. Another detail of this make is in the so-called decompressor, which consists of a shaft sliding inside the camshaft and independently operating the exhaust valves. This inner camshaft is used as an aid to starting.

The Fiat is showing a new model—a 20-30-horsepower shaft-driven car of extremely robust construction, this being the first time the Fiat has fitted a shaft-drive to a high-powered car. The yoke construction of the distance rod is well designed and strong. The Fiat is also fitting a force pump for its lubrication. The pump is geared to the motorshaft and is located inside the crank housing. This pump is fitted to all its 1908 models.

The Italian contingent of exhibitors is exceedingly strong and the Isotta Fraschini and Bianchi models are of great interest and charm. They may not show originality of principle or of design but their excellent execution is derived from all that is best in the noted French makes. The Italians have the reputation in Paris of being copyists; if so, then they are exceedingly good copyists and improve upon the original designs they follow.

The smallest six-cylinder model shown is undoubtedly the 15-horsepower Delaunay-Belleville, a veritable jewel of fine workmanship, embodying the latest design of the boiler-making firm. The most powerful six-cylinder is perhaps the Charron, of 90-horsepower, a new model for this house, put forward, it is said, after considerable hesitation on its part.

Long a sturdy opponent of cardan shafts, Brasier is fitting one to the small town 12-horsepower two-cylinder model. The cone clutch is still adhered to. A gearset with two idle shafts is also retained. All shock deadeners are garnished with leather washers, obviating the use of oiling systems. A six, 45 horsepower, with cylinders cast in pairs is the latest production, this being one of the few moderate-sized sixes on show. The majority of six-cylinders give over 50 brake horsepower. No great change in mechanism is made by Brasier, but he fits the steering bar in front of the axles, unless otherwise specified.

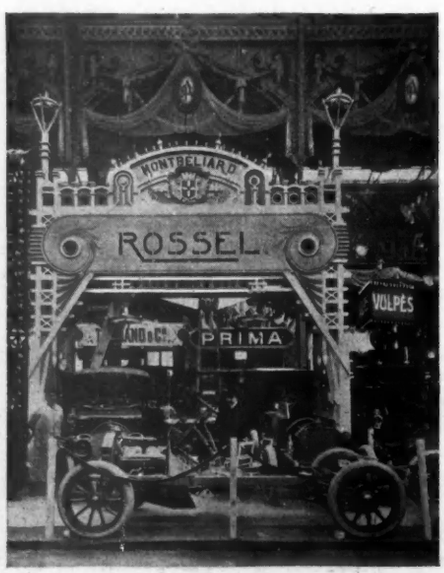
Panhard is fitting the Saurer self-starter to all its models when specified. This starter is operated by compressed air, maintained at a constant pressure by a pump geared to the motor. It also serves to pump up the tires on occasions. For next season the Ivry firm has fitted a small device whereby the oil supply to the motor is proportioned to the power developed by the motor without the intervention of the driver. Hitherto the amount of oil supply has been regulated by the speed of the motor. The Panhard people make it depend upon the power developed. The trick is done by the addition of a small pressure spring in the carbureter. Braking by means of pure air admission is also adopted by this firm.

The Berliet is showing among others a six-cylinder model which is remarkable from the fact that it employs a seventh cylindrical chamber on the left of the group. This is filled with air by a geared pump at a pressure of 280 pounds or more. This compressed air is admitted to the cylinders when an extra effort is demanded of the motor. The idea is new and might with more advantage be applied to a four-cylinder than to a six, it is thought. The cylinder containing the air reservoir is in one casting with the six cylinders, forming a very compact and neat group. The Berliet people have been 2 or 3 years working out the idea, which is patented, but the model has only been completed for about 3 months.

Darracq is making the greatest bid for popularity. There are one or two examples of cars with a covered seat for the driver, an enclosed limousine body for the women or those preferring inside traveling, and two top seats over the driver's head with a capot. The resemblance to the old stage coach is further apparent by the small panes in the windows. The cars have a graceful appearance. There also is a cab for London public service, a double limousine and a single limousine. The novelty shown at this stand is a neat gearset and differential combined.

Panhard progress, as exemplified in its new 15-horsepower car, is most attractive. This four-cylinder model has the side pressed-steel frame members reinforced with wood sills on which the body rests and the steel parts are raised above the back axle to allow of the use of three-quarter elliptical springs. But the car is shaft-driven, and that is a big thing in that this concern has remained close by chain-driven cars in spite of the fact that it has used shaft-driven cars for racing.

NEAT BOOTH OF THE ARIES



ROSSEL DISPLAYS A CHASSIS

CHICAGO'S SEVENTH SHOW OPENS SATURDAY

CHICAGO, Nov. 26—Chicago's seventh annual show, which will for the third consecutive season be the only national exhibition of the year, will open Saturday afternoon at 2 o'clock at the Coliseum, First and Seventh regiment armories. Three buildings are necessary for this year. In order to accommodate the special display of commercial vehicles, this exhibition will occupy the Seventh regiment armory exclusively, leaving the Coliseum, its annex and the First regiment armory devoted entirely to the pleasure vehicles and accessories.

Busy scenes have been enacted about the three buildings since Monday, when the work of installing the elaborate decorations was begun. Forces of men have worked uninterruptedly day and night to prepare the setting for the monster display of motor cars. Work has progressed so rapidly that it will be possible for the exhibitors to move in their exhibits tomorrow. As was to be expected, the most elaborate decorations will be found in the Coliseum and the First regiment armory. Papier mache material has been worked into attractive designs, which will form the chief part of the embellishments. The artistic effects will be produced by means of oil paintings which have been contributed by Hardesty Maratta, the Chicago artist, and the Daniels Scenic Studio, also of this city.

Maratta has furnished 112 views, which represent motoring scenes, the car in each picture being that of the machine displayed beneath it. The scenic studio has furnished 142 oil paintings, ranging in size from 4 by 8 to 8 by 24 feet, covering in all 8,734 square feet of canvas. These pictures will show cars photographed in all parts of the world. Every picture represents some actual occurrence. Racing pictures will be given a place, the subjects including the 24-hour races at Morris park and the Brooklands track, in England; a race on the Detroit track, and two scenes at the Vanderbilt cup race in 1906. In all there will be nearly 9,000 square feet of oil paintings, 20,000 square feet of papier mache, 150 of the Mercury placques, designed by Arthur Merrick; 150 figures of a motor girl, designed by Manager Samuel A. Miles, Assistant Manager L. L. Fest and Artist Thiede. This new figure, which stands 36 inches in height, will adorn the pillars in front of the spaces. More than a mile of signs will be used, more than 100,000 square feet of ornamental work in the roofs of the buildings, 20,000 feet of paneled wall covering, 110 square feet of carpeting and 3 or 4 tons of miscellaneous staff ornaments.

In number of exhibits the Chicago show will have more than the two New York affairs combined. The added space at Chicago, with the use of the Seventh regiment armory, is equal to 75 per cent of the entire space available at Grand Central palace and Madison Square garden. The total number of square feet occupied at Chicago will be about 110,000. On account of the two New York shows being held at different times, it is expected that a larger number of agents will attend the local affair than went to New York. The Chicago show will have a motor cycle section, in which twelve different makes will be shown. The official figures give the number of accessory exhibitions as 180. The motor cycle exhibits have been given a separate department for the first time, space having been reserved for them on the second floor of the annex.

The National Association of Automobile Manufacturers, under whose auspices the show is held annually, is as its name implies, truly national in character. It was formed and has for 8 years been conducted for the benefit of the trade as a whole. It knows no trade controversies. Its membership is open to all makers of motor cars whose products have been on the market a sufficient time to thoroughly demonstrate their worth. In the distribution of space the Chicago show knows no faction. That the older and more important manufacturers obtain some preferences is true, but this advantage is based solely on the qualifications mentioned.

Thus the Chicago show held under the auspices of the N. A. A. M. is supported by the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Asosciation and the Motor and Accessories Manufacturers—in short, all the organitazions of the trade, both in complete cars and accessories. The result of the combination is that the Chicago show is exactly what it is claimed for it—the only national show of the year. Its exhibitors exceed in number all the other shows of this nature.

The holding of a commercial vehicle exhibition separately is due to the conclusion to which the association has come that it is timely for an independent and comprehensive display of commercial cars. The industry has assumed such importance that it is well able to support a show of its own and give to the world a demonstration of its development. For that reason the first annual exhibition of commercial vehicles has been organized. While it is, in some respects, a part of the old show, it was thought wise to give it a distinct title, thus marking the time when the commercial car assumed such importance as to demand separate representation in a show of its own.

Even with the increased space there will not be sufficient room at the coming show to accommodate all of the applications. It was found possible to take care of 117 motor car manufacturers, while at least twenty more were disappointed. Half a dozen of the latter are of considerable importance.

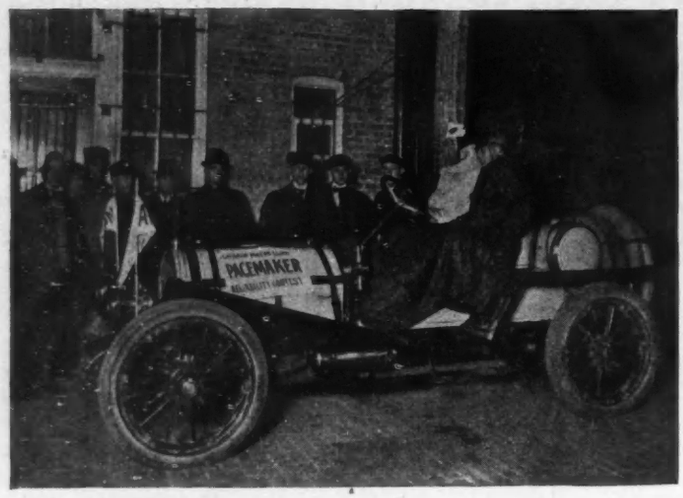
While all of the applicants for space in the commercial section have been accommodated there was no room left for others, the entire floor of the building, which was formerly Tattersall's, being crowded with exhibits. A feature of the commercial display will be the Alden Sampson train, which consists of a tractor with a gas engine and generator and is capable of carrying 3 tons. Both the tractor and the trailers back of it are equipped with six wheels each. The tractor transmits currents to electric motors driving the two center wheels of each vehicle. Each trailer, of which there are two in the show train, carries 7 tons and each trailer drives itself with the power transmitted from the tractor.

It is expected that this feature will be of much interest to the layman and as there will be other interesting attractions at the commercial show it is most likely that many visitors will plan to visit the Seventh regiment armory after reviewing the pleasure vehicles. By showing the admission ticket to the show to the driver of the buses which will be furnished by the Worth and Rapid companies free rides may be secured between the Coliseum and the Seventh regiment armory. A board sidewalk will be constructed in the alley between the Coliseum and the First regiment armory as usual.

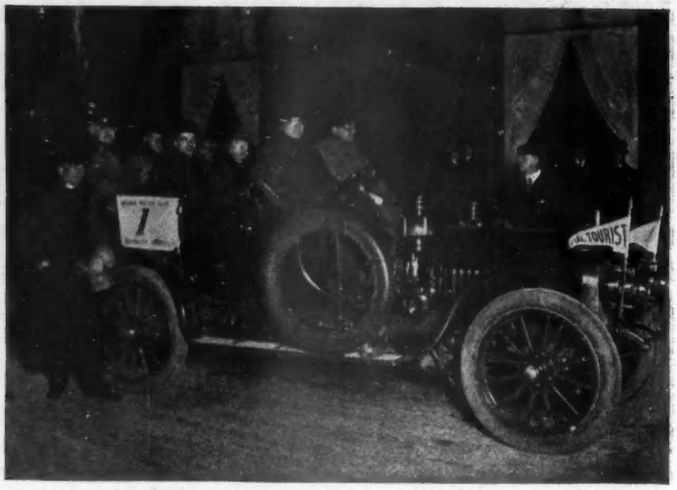
Owing to what would seem to be an advisable departure, the admission fee will be advanced on Wednesday and Thursday. This action is deemed wise in order to give the investigators a chance to inspect the machines when the crowd will not be so dense. All other days the admision fee will be 50 cents. General Manager Miles feels confident the attendance will be larger than ever, with so many attractions offered.

PART OF THE DECORATIVE SCHEME OF THE CHICAGO SHOW

TWELVE PENALIZED IN CHICAGO SHOW RUN



FLASHLIGHT OF PACEMAKING APPERSON AT THE START



ROYAL TOURIST WAITING FOR THE WORD

CHICAGO, Nov. 26—Favored by weather that could not have been improved upon, thirty-five of the thirty-six cars entered in the 600-mile three days' reliability run of the Chicago Motor club participated today in the first leg of the contest, a journey to South Bend, Ind., and return, which totally eliminated three of the cars and penalized ten of the others. The three to drop by Marion roadster and a Frayer-Miller. In the case of the Thomas is was a narrow escape from a serious accident.

It was a day chock full of incident. Also yesterday was interesting in that the garaging of the cars was followed by an examination that was far different from anything ever before attempted in a reliability test. Each car as it was turned over to the technical committee was carefully measured as to the condition of its springs, axles, frame, etc., for the purpose of comparison on Friday when the survivors will be compelled to submit to a rigorous test by the committee to prove that they are in as good running order as when they started the ordeal. Following the examination the cars were turned over to the Pinkertons for the rest of the night. There wasn't much time left, for at 3 o'clock the Rambler car, which is strewing the confetti, got on the job and started out by moonlight to lay the trail to South Bend.

At 4:30 N. H. Van Sicklen in the Apperson Jackrabbit, accompanied by Frank Wood, of Elgin, started out to act as pacemaker for the outfit. Then everyone got busy pushing the cars out to the starting point on Thirtieth street, pointing west to Michigan avenue. It was a close call but willing hands soon had the garage emptied and the cars in their proper order. Promptly at 5:01 Starter Lawrence gave the word to R. W. Cook in the Royal Tourist and the great reliability run had started. The others were sent away at 1-minute intervals, the only break coming when it was time to send the Rapid bus on its journey. It was having switch troubles and it got away late—in such a hurry that tools were forgotten and left behind. It had been anticipated that it would be hard work getting out enough people to fill

ONE OF THE PENNANTS

the cars, so the committee had provided plenty of sand bags to make up for the deficiency in weight. However, these were not needed except in the case of the Silent Knight and one of the Jacksons. The Knight carried two bags of sand. The Peerless was scratched.

At 5:36 the last car, a National roadster, had gone and five minutes later the neighborhood was deserted by all save the milkmen. The stay-at-homes went down town to get reports from the checkers at Michigan City and South Bend. They did not have long to wait, for about 8 o'clock word came that C. A. Coey was in trouble at Michigan avenue and One Hundred and Twenty-seventh street. There is a bad turn at that point—a cross road with a bad bend. Coey was unfamiliar with the turn and was on it before he had time to swing. The result was he went into the ditch and the tumble broke a rear axle, which effectually put the Thomas out of the contest. R. I. Eads, sales manager of the Premier company, who was the observer, was scratched up some and the Thomas party returned to the city by train.

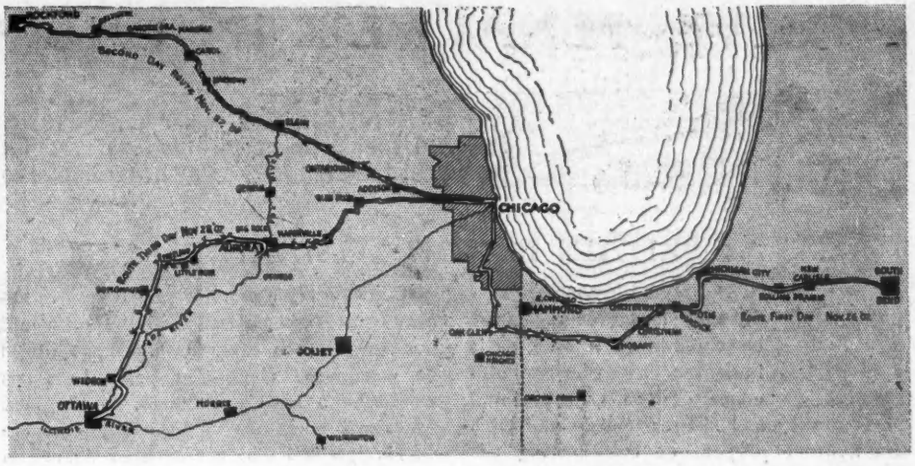
A little later R. W. Cook unexpectedly appeared on the row, grabbed up a rear axle he had telephoned for, jumped into a car and scooted south. It seems that near Dolton he slapped on his hand brake so sharply at a turn that he snapped a rear axle. Determined not to quit so easily he telephoned for a new axle, caught a train, went to Chicago, got the axle

THIRTIETH STREET AND MICHIGAN AVENUE, STARTING POINT

and had it back on the car again in 4 hours 45 minutes. Although way behind schedule he kept on and went through, making up more than 2 hours of his deficiency. He expects to stick to the end of the contest.

The Marion also got into trouble through skidding and C. W. Price blames the sealing for his trouble. He claims that the wires placed on his coil caused a short circuit. He was hitting on two cylinders from the start and turning into the Indiana roads he started hitting on three. Then he opened up a bit to make up lost time, skidded on a piece of ice and broke an axle. Like Coey he was down and out so far as the contest was concerned, there being no train handy to get a replacement.

In the meantime the others had been proceeding merrily on their way. The chill air of the morning soon disappeared and it became a real pleasure jaunt. In stretches the road was good enough to allow all to beat it to the Michigan City control. Everybody still in the going got there in plenty of time to enjoy the coffee provided by Oliver Temme. South Bend was made just as easily and at the turning point each contestant was furnished with a free lunch by J. M. Studebaker, Jr., manager of the Studebaker garage at that place. The hot coffee tasted good to the chilled mortals. The return journey was comparatively uneventful. From Michigan City in there were all sorts of chances to beat it, the committee having ruled that everyone would be checked in as soon as they arrived, regardless of the schedule. Thereupon the Pierce-Arrow six, driven by Paul Hoffman, No. 2, maintained its place at the head of the line, checking in more than an hour ahead of the schedule. The big cars all got in before dark and it was not long after before



MAP OF THE THREE ROUTES OF THE RELIABILITY RUN

the last of the little cars had reported. Then the judges got busy studying up the reports of the observers. It was a laborious task and in two instances—the Royal Tourist and the Reo—the officials were unable to settle upon the exact penalization. This will be announced tomorrow. It came out that the Frayer-Miller would be unable to proceed because of a cracked frame. This made three out altogether. The Pierce-Arrow No. 2 was debited twenty-six points because of work put in on a brake in which a sealing wire had become entangled. The Matheson No 6 came in for sixteen points because the driver stopped to tie up a sprag with a string. The Maxwell had plenty of motor trouble but despite this handicap it made all the controls on time. The Matheson roadster was penalized 235 points through trouble over a radius rod, while a brake adjustment made on a Locomobile by Fred Leiser cost that car ten points. The Pierce-Racine was fined nine points for work on a spring. It is a noticeable fact that of the twelve cars penalized only one, the Royal Tourist, did not make the different controls on time.

The work of the Rapid bus was particularly noteworthy. Carrying twelve people the solid-tired rig had not the slightest difficulty in keeping ahead of the schedule. Had it not been for the trouble before the start it would have had a perfect score, for not once was it in trouble on the road, developing a speed that made some of its touring car rivals hustle to keep up with it.

Two more days of the contest remain. Tomorrow the survivors go to Rockford, Ill., and back, a distance of only 186 miles. It is reported there are many places where new gravel has been put on the road and this fact is expected to still further cut down the list of eligibles for the Miles, Goodrich, New Southern hotel and McElligott trophies. Thursday the run is to Ottawa and back, a few miles over a double century.

Contestants in the Chicago Show Reliability Run of Chicago Motor Club, Nov. 26, 27 and 28, 1907

No.	Car	Class	Type	H. P.	Tires	Entrant	Driver	Observer Nominated	1st Day Penalty
1	Royal Tourist	A	T. C.	45	Diamond	R. W. Cook	R. W Cook	L. S. Jullien	Not settled
2	Pierce-Arrow Six	A	T. C.	40	Goodrich	H. Paulman & Co	Paul Hoffman	F. Paulman, Jr	26
3	Rambler	B	R	32	Goodrich	T. B. Jeffery & Co	Ted Collier	Ed. Dixon	None
4	Peerless	A	T. C.	30	Diamond	W. G. Tennant	C. Burman		None
5	Wayne	B	R.	30	M & W	Wayne Automobile Co	Frank Gremel	J. D. Porter	None
6	Matheson	A	T. C.	50	Diamond	Palmer & Singer Mfg. Co.	Ralph Smith		None
7	Matheson	A	T. C.	50	Diamond	Palmer & Singer Mfg. Co.	D. Buck		16
8	Stevens-Duryea Six	A	T. C.	50	Fisk	Louis Geyler	Clifford Clark	F. Leabenworth	None
9	Stoddard-Dayton Six	B	R.	30-35	Goodrich	McDuffee Automobile Co	C. A. Englebeck	W. W. McDonald	None
10	Jackson	C	T. C.	20-24	Goodyear	Jackson Automobile Co	E. F. Scheiffler	Robert Johnson	None
11	Jackson	C	T. C.	20-24	Goodyear	Jackson Automobile Co	F. L. Holmes	W. Diehl	None
12	Autocar	B	R.	30	Fisk	James Levy Co	Barney Oldfield		None
13	Maxwell	C	T. C.	20	Goodrich	Maxwell-Briscoe-Chase Co	J. Mitchell	W. B. Jameson	334
14	Haynes	B	R.	30	Diamond	Haynes Automobile Co	Frank Nutt	J. H. Seagraves	None
15	Dragon	B	T. C.	24	Diamond	Dragon Automobile Co	J. W. Haynes	A. L. Kull	None
16	Rapid	C	Bus.	25	Firestone	Rapid Motor Vehicle Co	Frank Grogan	R. Johnson	75
17	Frayer-Miller	A	T. C.	50	Diamond	Oscar Lear Automobile Co	J. Barnes	R. M. Hess	Out
18	Auburn	C	T. C.	24	Goodrich	Auburn Automobile Co	R. E. Parker	J. C. Lochner	None
19	Marion	B	R.	24	Michelin	Favorite Automobile Co	H. Stutz	W. J. Bowman	Out
20	Studebaker	A	T. C.	30	Diamond	Studebaker Bros. Mfg. Co.		H. M. Chambers	None
21	Thomas Flyer	A	R.	60	Goodrich	C. A. Coey	C. A. Coey	L. Jackman	Out
22	White	A	T. C.	30	Diamond	White Co	H. K. Sheridan	A. Edmonson	None
23	White	A	R.	30	Goodrich	White Co	W. Leitch	H. P Thompson	None
24	White	B	T. C.	20	Diamond	White Co	C. E. Denzer	G. L. Schofield	None
25	Reo	C	R.	18-20	Michelin	Walden W. Shaw Co	M. D. Vandecar	H. F. Musgrave	Not settled
26	Matheson	A	R.	35	Diamond	Palmer & Singer Mfg. Co.	J. Heineman		235
27	Stoddard-Dayton Six	A	T. C.	50	Goodrich	McDuffee Automobile Co	Bert Payne	G. F. Descher	None
28	Kisselkar	B	T. C.	30-35	Goodrich	Webb Jay Motor Co	Webb Jay	Frank Jay	None
29	Pierce-Arrow Six	A	T. C.	40	Goodrich	H. Paulman & Co	A. Kumpf	J. J. Johnson	None
30	Oldsmobile	B	T. C.	38	Diamond	Olds Motor Works	Ralph Owen	C. Hunter P. Henderson	None
31	Pierce-Racine	B	T. C.	40	Goodyear	Pierce Engine Co	J. Hanson	A. J. Pierce L. F. Stevens	9
32	Silent Knight	A	T. C.	35-40	Firestone	Knight & Kilbourne	D. Kilbourne	Scott Goodwin	None
33	Locomobile	A	T. C.	40	Diamond	Locomobile Co. of America	M. Mitchell	W. L. Chambers	None
34	Locomobile	A	T. C.	40	Fisk	Locomobile Co. of America	Fred Leiser	H. Harrold	10
35	Premier	B	R.	24	Michelin	Premier Motor Mfg. Co.	R. McNamara	R. I. Eads	None
36	National	A	R.	50	Diamond	Ralph Temple Auto. Co	John Aitken	F. J. Richardson	None

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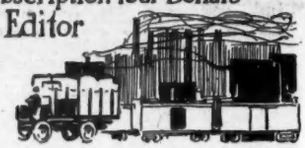

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GREAT BRITAIN IS NOW LEADING FRANCE

NGLAND and France are still fighting for supremacy in the motor car field abroad, as is indicated by the magnificence of the Olympia and Paris shows, held simultaneously and with the avowed purpose of one besting the other. Paris represents all that is good on the continent—France, Italy, Germany and Belgium—and there are English makers who are catering to continental trade. At the same time the Olympia show is by no means a purely English affair, for the continental makers are well represented there. Paris has an immense exhibition of cars and parts, there being 1,403 exhibitors whose goods are valued at approximately $8,000,000, but while such grandeur is displayed one cannot overlook the fact that the English makers are nearer to the hearts of the people and bid fair to do a more extensive business in motor cars than the continental makers.

The wares of continental makers are wonderful examples of mechanical art, the exhibits are grand, but it has been clearly demonstrated that the continental makers have not realized that the days of such expensive creations as their cars are nearly past and that popular-priced cars of good construction are what are in demand and what will be sold in the future. English makers came to this conclusion long ago and as a result are in a far better financial condition and have more hopes for the future than have the French, German and Italian makers.

In all probability pride and a spirit of rivalry are responsible for the continental makers sticking to a policy that must in no very short time upset them. As a matter of fact many of them are today in a precarious condition and some have hung on with a hope that the show itself would be the means of stimulating trade sufficiently to permit them to see their way clear to go ahead instead of liquidating or being forced to go out of business. It is true there are cheap cars on the French market, but according to reports the really popular cheap car has not yet made its appearance. France is not having things all its own way, for there are something like 300 foreign concerns exhibiting. The English are there, but America is barely represented, probably because of the fact that this country proved a sufficiently fertile selling field the past season and because, further, the outlook on the continent has been anything but reassuring, particularly to a foreigner.

This has been a mistake, for were some of this country's popular priced cars to appear on the continental market they would doubtless find a ready sale. What would be considered a popular price in Paris would be a high price here, so the best American machines could easily compete on foreign soil and the cheaper American machines, after their stability had been established, would go like the proverbial hot cakes.

It must be said to the credit of the continental makers that they have not—at least in the past year—made anything like a fair profit, but that they have not, for the sake of pelf, permitted their goods to suffer in quality. At present they either believe their cars are worth all that is asked for them or they hope by upholding prices to regain whatever they may have lost within the past year. They have not deemed it wise to reduce prices, and so the man who wants a continental-built car will pay practically as much as ever for it.

There has been little change in design. There are more six-cylinder cars than ever before, although naturally the four-cylinder continues to be in the majority. The French maker has given much attention to the matter of springs and as a result there are a number of decided changes from past construction in this matter, but nothing radically new has made its appearance.

While the French creations are superb in design and execution, as a matter of fact the Frenchman seems to depend upon the gorgeousness of his exhibit to create a favorable impression upon the visitor. He does not believe in the old saying that fine feathers do not make fine birds, or that swell clothes do not make good-looking women. He knows that while these old sayings may be literally true, the fine things go a long way toward helping out what otherwise might be rather commonplace in appearance, and so he goes in for looks to the extreme.

It has resolved itself into a hot trade fight, the English with the medium-priced car and the French with the high-priced creation. France may be able to find a market for all these big creations, but it will not be on home territory, whereas England not only has the continent and the British isles but the colonies as well, to find a market for its wares, which, from the standpoint of price alone must naturally take precedence. This fight between these two countries naturally gives American makers an opportunity which they should not overlook.

G. H. DAY, ONE OF NATURE'S NOBLEMEN

HE commonplace phrases to which one usually has recourse in connection with the departure of a business acquaintance would be inadequate and quite out of keeping with the character of the great figure who has just passed away. In George H. Day we knew a man who was, incidentally, a business acquaintance but primarily the personal friend of everyone with whom he became well acquainted. And as such he will be mourned in every great city of the United States. It is difficult to find a fitting description of this great character without indulging in mere repetitions of well-worn eulogiums. He was one of the men—one of the very few men—of whom it may be truthfully said that he was "one of nature's noblemen." George H. Day was not, in the common acceptance of the expression, a sharp business man. He was a clean man. He knew no sharp practices. He took no advantage of his neighbor. He sought no opportunity to become suddenly or abnormally rich. He despised, though he was sometimes forced to submit to the methods of the financier. He failed to take advantage of many opportunities to become a capitalist, preferring to earn, by his own effort, whatever might come to him in the course of a long and arduous business career. And, for a man who has accomplished so much and who has been a leading figure in three great industries, he left an extremely modest fortune. Mr. Day was a born organizer; a capable head of great industries. He aspired to be, and was, a great manufacturer. It delighted him to conduct a great manufacturing establishment, where his ability might be turned to good account, not merely for the advantage of his stockholders but of the workpeople who made the success of his enterprise possible. His men respected and admired him and worked faithfully for him, not as men whose interest lay in the wage of the moment but as men who felt themselves a part of the enterprise. Those who were on a more familiar footing regarded him as a personal friend to whom they could, and did, appeal for sympathy and counsel. And no man who knew him well has anything but kind words to say of him. With his departure we lose a man whom many of us have known for a quarter of a century. Many a day will pass before those of us who knew him best will cease to point to him as an example of clean success and of good-fellowship.

THE decision in the conduit road case in Maryland has resulted in a peculiar mixup in that part of the country. Under the ruling this road is no public highway and, therefore, motorists are immune from arrest, no matter at what speed they are traveling. This has stirred the farmers to action and they say that if there is no law for the motorists there is no law for them, the farmers, and that if motor cars can speed over the highway at express-train speed it is perfectly legal for them to scatter tacks on the road and stop them. This feeling is to be regretted and it is to be hoped that the motorists, even though flushed with victory, will remember that others have rights, no matter if the law does not happen to cover that particular case. Toleration should be shown on both sides.

WISDOM was displayed by the promoters of the annual Ormond tournament in securing the co-operation of the Automobile Club of America and turning over to that powerful organization the management of the big sand meet. In the first place, the A. C. A. undoubtedly is anxious to demonstrate to the motoring world that it can do something else besides co-operating in the promotion of a big show and here is its chance to jump in and make good. There are all sorts of opportunities at Ormond. Senator Morgan has laid the groundwork for a national meet of such importance that if run under the auspices of the A. C. A. it will attract entries from all parts of the world. Foreign makers will have confidence in races under the jurisdiction of the A. C. A. and that means entries, which were so sadly needed last year. The time for running the meet might be more opportune, but altogether the outlook for Ormond this winter is decidedly rosy. There may be trouble over the short distance qualifying heats for freaks in the star events, but this is something the A. C. A. committee is well able to thrash out itself.

GREAT BRITAIN always has been a pioneer in the promotion of events for motor cars and it is due largely to this early missionary work that motoring has such a vogue in the United Kingdom. Now, however, the British trade is beginning to suffer from an overdose of competition and it has cried halt in no uncertain terms. An echo is heard from the Royal Automobile Club, which recognizes the justice of the complaint and the result has been a co-operation to bring about one test and that big enough to be called international. On paper the scheme looks good and consists of a 2,000-mile reliability run on the road, 20 miles of hill-climbing and a 200-mile race on Brookland's track. This seems broad enough to take in all phases of motoring competition and give the trade a fine chance to put all its eggs in one basket and demonstrate in such an affair just how good its products are. No doubt such a consolidation of competition as this will be brought about in this country, but it hardly will be for several years yet, for the United States is so big and so many sections have to be catered to that the makers will have to look for more than one channel to gain publicity.

EVIDENTLY the house of Hotchkiss intends to set a high water mark in the American Automobile Association, if one may judge by its announced program. The retention of the old officers undoubtedly was a wise move, for now Judge Hotchkiss and his colleagues know their work and can go ahead with it. Chicago show week is apt to bring out the plans of the association and the A. A. A. is coming into a territory in which there are great opportunities to spread the triple A gospel. It's an old broom by this time, but that is no reason why it should not sweep clean and evidence of activity, if shown at the various meetings in Chicago next week, should go a long way toward making the A. A. A. strong in the west.

AT THE present time there is in progress a competition that promises to be the banner event of the year—the 600-mile reliability run of the Chicago Motor Club, an affair in which the rules have been so carefully drawn up that the committee feels it has covered every possible point. How well it will work out in practice remains to be seen, but the one thing the club feels proud of is the final test on the fourth day. No other promoting body ever has attempted to demonstrate after a reliability run the exact condition of the cars so that the public might judge for itself just how the machines have stood the gruelling test. In other reliability runs a car that could go the distance without penalization was given a clean score, no matter if it was fit for the scrap heap at the finish. The Chicago affair will have none of this. To secure a perfect score in the 3-day contests it is necessary for a car to prove its stability by being in as good condition at the finish as it was at the start, as well as having lived up to the conditions of the test during the 3 days of running. If Chicago gets through with this successfully it will indeed have established a record of which it may well be proud. That several were eliminated the first day only goes to show that caution should be the watchword in a contest of this sort and that a driver, depending upon lamps to pick his road, should take no chances when so much is at stake.

THE WEEK IN BRIEF

President Hotchkiss of the A. A. A. reappoints old chairmen and adds two new ones—N. H. Van Sicklen, of Chicago, technical committee, and A. G. Batchelder, of New York, publication committee.

S. A. Miles hurrying to complete his preparations for seventh annual Chicago show which opens Saturday; all indications point to it being the largest held in this country.

Alfred Reeves, general manager of American Motor Car Manufacturers' Association, reviews Olympia show and gives his opinion of the foreign tendencies.

Control of the annual meet at Ormond is turned over to Automobile Club of America, which selects W. J. Morgan to take charge of the details.

Three days' reliability run of Chicago Motor Club starts, going to South Bend first day; several are eliminated in opening round of big contest.

The Paris salon, greatest of all French shows, opens and 300 foreign concerns participate; goods valued at $8,000,000 are on display.

George H. Day, former manager of the A. L. A. M., dies in Florida, where he had gone to regain his health.

Many applications for space in importers' show filed by accessories people.

COMING MOTOR EVENTS

Chicago Shows—Eighth annual Chicago show, Coliseum, and first commercial vehicle show at Seventh Regiment armory, both November 30 to December 7. S. A. Miles, manager, New Southern hotel, Chicago.

Accessories Show—A. M. Andrews' accessories show in Brooke's Casino, Chicago, November 30-December 7.

Paris Salon—Tenth annual Paris salon in Paris, France, November 12-December 1.

St. Louis Show—Second annual show of St. Louis Manufacturers' and Dealers' Association. Jai Alai building, week of December 14-21; John J. Behen, chairman .

Detroit Show—Detroit Automobile Dealers' Association's show at Wolff's park, Detroit, week of December 9-16.

Hartford Show—Annual exhibition of Automobile Dealers' Association of Hartford, Conn., in Foot Guard armory, January 14-18.

German Shows—Exhibition of touring cars in Berlin, Germany, December 5-15; exhibition of commercial vehicles, December 19-22.

Brussels Salon—Annual Belgian show, December 21-January 2.

Irish Show—Annual Irish show in Dublin, January 4-11.

Italian Show—Exhibition in Turin, Italy, January 18-February 2.

GEORGE DAY IS DEAD

Former Manager of the A. L A. M. Passes Away at Daytona, Fla. —Was Prominent in Trade

Hartford, Conn., Nov. 21.—Like a thunderbolt from a clear sky comes the news this morning of the death of George H. Day, former manager of the Association of Licensed Automobile Manufacturers, at Daytona, Fla., where he had gone in an endeavor to restore his health. Mr. Day has for many years been a conspicuous figure of industrial Hartford and his loss is mourned by all those who knew him. During his term of office as president of the Electric Vehicle Co. he made many friendships which have been of an enduring character. While he lived practically all the time in New York, he retained a legal residence in Hartford, and always manifested a keen interest in the welfare of the city. By the rank and file in the Electric Vehicle Co. he is characterized as a man who never forgot his friends.

In 1879, when the Pope Mfg. Co. first commenced manufacturing Columbia bicycles, Mr. Day was president of the Weed Sewing Machine Co. at Hartford. It was with Mr. Day that Colonel Pope made a contract for the experimental bicycle, designed by William Atwell, who was for many years thereafter manager of the bicycle department of William Reed & Sons. This bicycle is said to have weighed 200 pounds, but it was ridden triumphantly by Colonel Pope about Boston and Hartford. This led to a contract for the manufacture of bicycles for the Pope company by the Weed company, which arrangement continued for 7 years, at the end of which time the bicycle had almost entirely supplanted the sewing machine, and the Pope company had so prospered that it negotiated for the purchase of the Weed plant. These negotiations were conducted for the Weed company by Mr. Day, who, with his family and others, controlled the property. When the sale was eventually concluded it was with the understanding that Mr. Day should be perpetually vice president and general manager of the company. The original plant of the Weed company is that old ivy-covered part of the now mammoth Pope plant, which serves principally for offices and repair shops.

With the decline of the bicycle business the Columbia Electric Vehicle Co. was organized, and Mr. Day became its manager. It was eventually absorbed by the Electric Vehicle Co., which owned plants in a dozen different cities and of which Mr. Day was made president. It was under Mr. Day's management of the Electric Vehicle Co. that the Selden license was acquired. Mr. Day retired from the active management of the Electric Vehicle Co. and went south for many months in 1900 on account of ill health, but returned in 1901 to resign shortly after and organize the Association of Licensed Manufacturers on March 5, 1903. In that position Mr. Day was not contented. He preferred life in Hartford and often expressed a friendly desire to return to this city and enter into some quiet manufacturing business.

Mr. Day was in his fifty-seventh year, having been born on April 3, 1851. He was a director in several Hartford companies and a warden of the Church of the Good Shepherd in this city. He had a summer home at Fenwick in the town of Saybrook Point, Conn. He leaves a widow; a son, Beach, a Yale graduate, who was recently married and is now reading law while engaged in commercial pursuits also; a daughter, who is the wife of M. Toskin Bennett, a lawyer of Hartford; and three younger sons, Frank, George and Godfrey. The interment will be at Hartford. The body is expected to reach New York city Sunday night.

A. A. A. CHAIRMEN CHOSEN

New York, Nov. 23—President William Hotchkiss today announced his appointees for the chairmanships of the American Automobile Association boards. Of four of the committees he has placed their present incumbents again at the head, as follows: Charles Thaddeus Terry, New York, legislative board; Robert P. Hooper, Philadelphia, good roads board, and Jefferson de Mont Thompson, New York, racing board. For the two other boards he has named A. G. Batchelder, New York, publications board, and N. H. Van Sicklen, Chicago, technical board. The two boards last named are new committees, only recently authorized by the board of directors. The technical board is expected not only to conduct on its own part several contests the coming season of a technical nature, but also to frame general rules for contests of this kind as well as to assist individual clubs in their promotion. The publication board will have mainly to do with the preparation of the A. A. A. year book for 1908. The board chairmen will select their own associates for appointment by the president and approval by the board of directors. Chairman Thompson, of the racing board, has called a meeting of his committee for next Wednesday in this city. It is expected that at this meeting the new rules for classification will be discussed before their presentation for approval to the A. A. A. officers at their coming meeting in Chicago. The new executive committee will meet for the first time at Chicago on Friday, December 6, during Coliseum show week. Its membership has been increased from seven to seventeen members to make it more comprehensively representative. On the new committee the middle west has a preponderance of representation in conformity to its proportion of membership in the national body. On the day preceding the meeting of the executive committee the committee on sanctions will meet at the First Regiment armory.

WANT ONLY ONE TEST

British Makers Outline Their Views Regarding an International Road Competition

London, Nov. 15—The British trade, tiring of giving its support to the thousand and one contests promoted yearly in this country, is now working to bring about one event only and that of a severity that will thoroughly test out every competing car and make a victory of great value to the winner. The proposition of the Royal Automobile Club to promote such an affair has been eagerly grasped by the committee of management of the Society of Motor Manufacturers and Traders, and that body has issued the following regarding the rules that should be drafted for this 2,000-mile contest, which will include a road test, hill-climbing and speed trials on Brooklands track:

"After long and mature deliberation the committee of management of the Society of Motor Manufacturers and Traders decided upon the following lines as providing the scheme best calculated to secure the support of the motor trade and the interest of the public for one great event to the exclusion of a large number of small competitions, involving great expense on the trade without any adequate return. It is intended that the particulars controlling the ratings of standard touring cars, as set out in the accompanying table, shall apply to this contest. We believe that the technical committee of the Royal Automobile Club has accepted these conditions, and that they will be embodied forthwith in the regulations governing the projected event:

"1—That there should be one and only one great event next year, to be known as the international motor contest, United Kingdom, 1908.

"2—The event to be organized and controlled by a joint committee of the Royal Automobile Club and the society.

"3—The contest to consist of, first, a 2,000-mile reliability trial on the road, starting from and returning to London; second, 20 miles of timed hill-climbs to be included in the 2,000 miles; third, the trial to finish with a 200-mile race on Brooklands track.

"4—The records are to be time records throughout, and will consist of, first, time lost on the road during the reliability trial; second, time occupied in climbing the hills; third, time occupied in race on Brooklands track; fourth, time occupied in filling gasoline tanks.

"With reference to the last item, no attempt has been made to give a comparative value to fuel economy and speed, but since excessive fuel consumption would entail excessive loss of time occupied by the act of filling up gasoline tanks, it was decided that a minute should be accounted as lost in respect of every gallon filled into

the gasoline tank of a car throughout the whole contest.

"5—Delays due to tires shall be counted both on the road and on the track. In view of the importance of devices to enable the quick change of tires, detachable wheels and rims will be permitted, provided that such rims or wheels are carried on the car throughout the trial.

"6—No spare part or material shall be employed to repair a car during the trial except such as may be carried on the car throughout the trial, but extra outer covers and inner tubes, gasoline and lubricating oil may be acquired during the trial, and ignition batteries may be recharged.

"7—Only the driver and mechanic shall be allowed to touch the car, excepting in the case of two-seated cars, when the observer may assist.

"One of the features of this competition is that cars will be started for the final 200 miles' race in each class in accordance with their respective time records on their arrival at Brooklands. Therefore the car which first passes the winning post at Brooklands will have won the first prize in its class."

MORGAN HAS A NEW ONE

New York, Nov. 23—Having been placed once more for safety in the managerial seat of the Ormond-Daytona tournament by his Florida east coast club, hotel and railroad friends, W. J. Morgan is already seeking other motor worlds to conquer. Coincident with the sounding of his Florida bugle call, he is out today with the announcement of what he says "will probably be the most satisfactory test of motor cars that has ever been given in this country." He has scheduled it for the last week in June and will pattern it after the annual Scottish trials. "It is proposed," says Morgan, "to divide the cars into five classes and give the winner of each class a principal prize, with prizes for the second and third in each class also. The trials will last for 6 days, the first 5 days being devoted to runs which will take the drivers through five states, the start being made each day at Bretton woods, to which place a return will be made each night so that the participants will have ample hotel accommodation as well as first-class garage facilities. On the sixth day will be the climb to the clouds, up the 8-mile carriage road to the top of mighty Mount Washington, 6,200 feet above sea level. In case of any ties in any of the classes of the endurance trials the drive up Mount Washington will surely produce a winner. It is quite possible that the prices for the 5 days' trials will be called state cups in honor of the states which the competing cars and their drivers visit. The trials will probably be held under the auspices of the White Mountain Good Roads Association, with a board of management selected from the principal New England clubs to run the proposed contest."

A. C. A. WILL RUN MEET

New York Club Agrees to Manage the Annual Beach Tournament in Florida

New York, Nov. 23—The sixth annual racing tournament on the Ormond-Daytona beach will be managed by the Automobile Club of America. At a meeting at Daytona, Fla., last week an arrangement was entered into by the Florida East Coast Automobile Association and the Florida East Coast hotel and railroad system whereby the management of the annual meet was entrusted to W. J. Morgan, who originated the Florida beach tournaments and has held the position of manager of all of them. Morgan, with the sanction of his backers, sought the Automobile Club of America and tendered it an offer of the promotion and management of the coming meet. The A. C. A. directors at a meeting today accepted the invitation of the promoters.

The contest committee of the club, made up of Robert Lee Morrell, John A. Hill, A. L. Riker, S. B. Stevens and A. H. Whiting, will officially be in charge of the meet; but the actual management and arrangement of the details will be in the hands of S. M. Butler, the secretary of the club, who enjoys a national reputation as one of the most able and efficient managers of motoring functions, indoors and in the open, in this country. With S. M. Butler at the helm and the prestige and backing of the wealthy pioneer motor car club behind him, an efficient and successful promotion of the Florida meet seems assured.

Butler and Morgan are to leave for the south on Thursday to attend a meeting of the Florida East Coast Automobile Association at Daytona on Saturday evening. While there the details of the meet will be discussed and probably will include arrangements for the building of land loops at the Ormond and Daytona ends of the course for the better and safer conduct of the long-distance races which are to mainly make up the program of the coming meet. It is announced already that there will be three of these long-distance races, one for gentlemen amateur drivers, one for strictly racing cars and one for stock cars. It is hoped that W. K. Vanderbilt, Jr., Harry Payne Whitney and other millionaire racing enthusiasts may be induced to participate in the contest that bears the gentleman label. The mile and 2-mile-a-minute races will again be on the program. Their entrants, however, will have to qualify by going at least 20 miles at a minimum speed of about 45 seconds to the mile. Word comes from Boston, by the way, that contemplating some such distance running qualification, both Ross and Stanley are building steam racers to conform to these requirements. How the qualification for the sprints by so comparatively short tryouts as contrasted with the 100 to 300 miles suggested at the conference at the Daytona club house at the end of last year's meet will be received by makers, who have intended making entries on the understanding that the tournament was to be an out-and-out long-distance affair with the sprints confined strictly to long-distance cars, remains to be seen. To the glorification of the steam sprinters was very generally attributed the scant entry of long-distance gasoline cars last year. The question is likely to be much debated as to whether a 20-mile tryout will be a sufficiently strenuous test to justly put freaks in the legitimate long-distance car class.

Immediately following yesterday's meeting of the A. C. A. directors, cablegrams were sent to the principal foreign clubs announcing the assumption of the management of the Florida meet by the A. C. A. It is expected that the promotion of the meet under such friendly and able auspices will result in European makers sending over entries of the crack contenders in the kaiserpreis, Florio and grand prix races. Incidentally this participation in the Florida meet may induce European makers to make racing car exhibits at the coming importers' show at Madison Square garden.

It is planned to run the Florida meet during the week following the annual motor boat regatta at Palm Beach, which is scheduled for the week of March 18. In view of the earlier shows this season and the fact that March always is a busy month among makers and tradesmen, a January or February date was favored.

AFTER SALON SPACE

New York, Nov. 26—Space in the accessory division of the Importers' Automobile Salon, to be held from December 28 to January 4 at Madison Square garden, is being rapidly filled, a great many of the booths being already taken. Applications are being received in considerable numbers each day at the office of C. B. Mabley, manager of the salon in the Bryant Park building. Among those who have already secured space are: Continental Caoutchouc Co., S. F. Bowser & Co., Sampson Leather Tire Co., S. Smith & Son, Witherbee Igniter Co., Harburg Tire Co., Heinze Electric Co., Victor Shock Absorber Co., Healy Leather Tire Co., Hartford Rubber Works Co., Alpha Co., Springfield Metal Body Co., Pneu L'Electric Co., Badger Brass Mfg. Co., Lavalette & Co., Auto Accessories Co., Auto Supply Co., B. F. Goodrich Co., Leon Rubay, Fisk Rubber Co., E. Lamberjack & Co., Hartford Suspension Co., Robert Bosch, Warner Instrument Co., Diamond Rubber Co., N. Y. & N. J. Lubricant Co., Oliver Mfg. Co., Pennsylvania Rubber Co., Central Auto Top Co., Havoline Oil Co., G. H. Curtiss Mfg. Co., Julius King Optical Co., Acetylene Co., Clover Mfg. Co., National Scale Corporation and Dow Tire Co.

The Realm of the Commercial Car

A Typical English Fire Brigade Wagon of the Gasoline Type

On this page is illustrated an English motor fire hose tender in operation at Birmingham. This equipment is provided with a 30-horsepower Siddeley engine and the vehicle when fully loaded is capable of making a speed of 20 miles per hour. The body provides seating accommodations for sixteen men, including the driver, together with a large quantity of hose under the seats and in the body of the vehicle.

The chassis can safely carry a total load of 3½ tons and has a wheel base measuring 12 feet. It is equipped with four-cylinder vertical motor with self-contained clutch mounted on an under frame and situated behind the front axle and immediately beneath the foot board of the driver's seat. The fire hose tender has an overall width of over 7 feet and a track of 6 feet 2 inches, while the width of the frame is 3 feet 10 inches and its overall length 16 feet 10 inches. The position of the motor allows for a very large proportion of the frame to be available for body space, and greatly reduces the amount of overhang at the rear. The distance from dash to rear end of frame is 14 feet 7 inches and the distance from dash to center of back axle is 11 feet 11 inches, while the distance from dash to back of driving platform is 3 feet 8 inches. It may be stated that the frame is constructed of pressed steel of taper channel section, being 6½ inches deep at the deepest part. The carriage springs are semi-elliptic, those at the back being 5 feet long, placed outside the frame. The front springs are 4 feet long. The vertical motor has four cylinders, 4½-inch bore by 5-inch stroke, developing a maximum of 35 horsepower at 1,100 revolutions per minute. Normal working conditions call for an engine speed of 900 revolutions per minute, at which speed it develops 30 horsepower. The cylinders are mounted on an aluminum crankchamber. The crankshaft is of Vickers' special crankshaft steel and is carried in three bearings lined with white metal. The crankshaft bearings are so arranged that the bottom portion of the crankchamber may be taken off without affecting alignment, and the upper portion of the crankchamber is provided with inspection doors. The intake valves are mechanically operated and fitted in independent boxes situated above the exhaust valves on the same side of the motor. The camshaft has its cams turned from the solid and is driven by an enclosed fibre gear wheel from the crankshaft and the valve push rods are fitted with rollers.

Premier Truck with Heavy Overload of Machinery

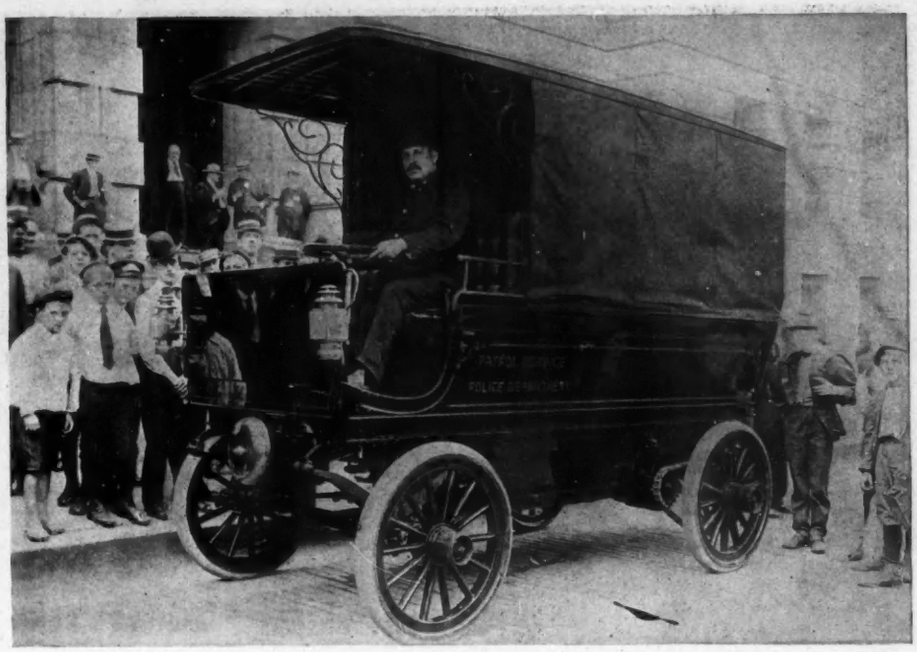
The ignition is by low-tension magneto of the rotary type, having a fixed firing point. High-tension ignition by means of accumulator and induction coil may be fitted as a supplementary system, if desired. In this case a high-tension contact breaker of the wipe type, with positive earth return, is driven by gearing from the crankshaft, and a timing lever is fitted conveniently on the dashboard. A slow speed centrifugal governor operates a balanced throttle in the mixture pipe. The carbureter is of the compensating type, fitted with an auxiliary air valve. Gasoline is fed to it under pressure from a tank placed at the rear of the chassis. A lubricating oil reservoir is fitted on the dashboard, with independent pipes leading to all important bearings, to which the oil is supplied under pressure from pumps driven by the engine. A separate sight-feed glass is arranged for each feed pipe. The connecting rods large ends are lubricated through hollow crank pins and are fitted with oil collectors. The cooling water is circulated by a centrifugal pump driven from the camshaft gear wheel.

In order to facilitate the starting of

heavy loads an extra heavy flywheel is fitted, and the clutch is of the cone type, leather faced and fitted with springs under the leather to enable it to take up the "drive" gradually. It drives the first shaft in the gear box through a short propeller shaft fitted with universal joints. The gearbox is divided, having a separate box for the change speed mechanism, the bevels and differential gear being contained independently. The gear shafts are fitted with "Wolseley" type ball-bearings. The gears are of the sliding type, and arranged to give four forward speeds and one reverse. All changes of speed are operated by one lever working in a special form of gate. All speeds are interlocked, and the reverse, obtained by means of a separate lever, is also interlocked with the main gear lever. The bevel gears are of special steel and the differential gear is of the straight tooth type.

The front axle is made of special axle steel I sections and is a drop forging with solid jaw ends. The steering is irreversible by means of a worm and sector. The back axle is a solid forging and mounted on semi-elliptic springs; plain phosphor bronze bearings carry the rear road wheels.

There are two independent systems of brakes provided. First, a double-acting hinged metal to metal brake of the locomotive type operating on a drum fitted to an extension through the after end of gearbox of the second countershaft. This brake, which is actuated by the right pedal, is fitted with renewable cast-iron blocks, the adjustment being so arranged that it is readily accessible, self-locking, and capable of being adjusted in a few seconds by an unskilled man without a spanner. Water cooling can be arranged for this brake when desired. The second brake is metal to metal expanding blocks operating in drums fitted on the rear road wheel sprockets, actuated by a hand lever beside the driver. These brakes are equalized to both sides of the car, are double-acting and fitted with a self-locking adjustment.



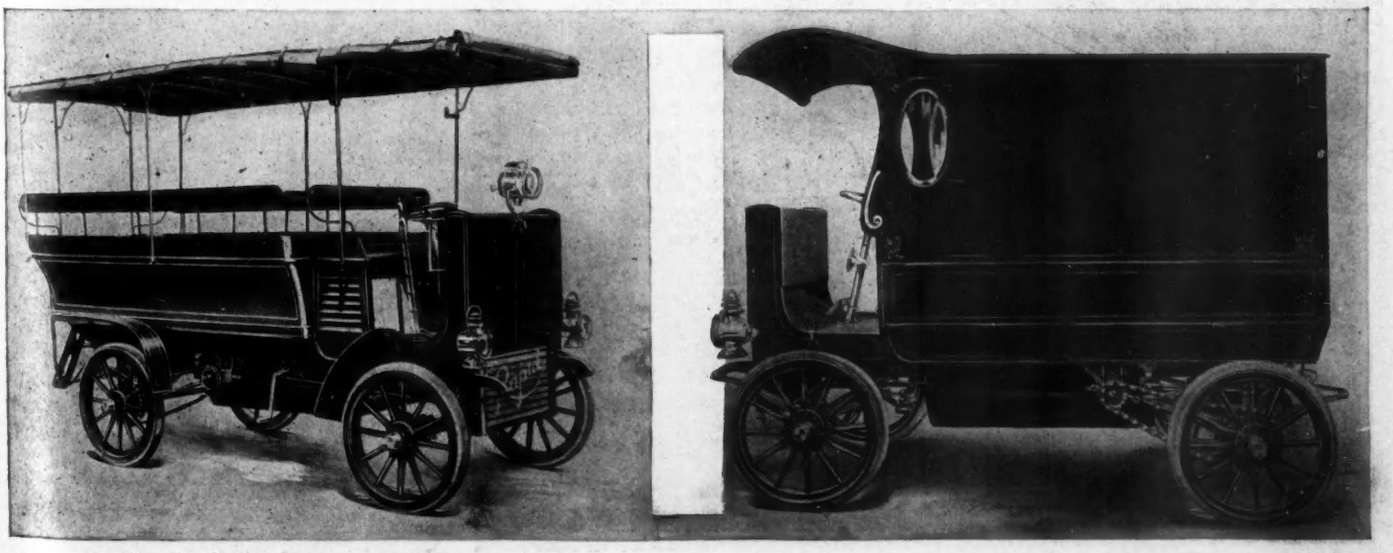
THE ELECTRIC PATROL IN USE IN BALTIMORE

The engine is provided with a governor which operates a throttle in the mixture pipe. The engine is arranged with variable lift control, acting on the induction valves. The front wheels are 32 inches in diameter; the back wheels are 40 inches in diameter. The total weight of the chassis when fitted with 4-inch twin solid tires to back, and 4-inch single solid tires to front wheels, respectively, is 5,800 pounds.

In the Progress March

The Baltimore police department has been using in its central district for the past month an electric patrol wagon which has, so far, more than met the wishes of Police Commissioners Marshal, Farnan and Ware. The commissioners hope to supply the other districts with similar wagons and expect when this is done to have considerably increased the general efficiency of the department. The patrol body was built by Frank Dietz, a local builder, and with its equipment weighs 2,500 pounds. It has a speed of 11 miles per hour when loaded. Its wheelbase measures 92 inches, wheels have a diameter of 36 inches and tires are 3½-inch solid rubber. The two electric motors are coupled to the road wheels through double reduction gears and chains. Baltimore has ambitions to go still further in the relegating of the horse from municipal fields and the substitution therefor of motor power.

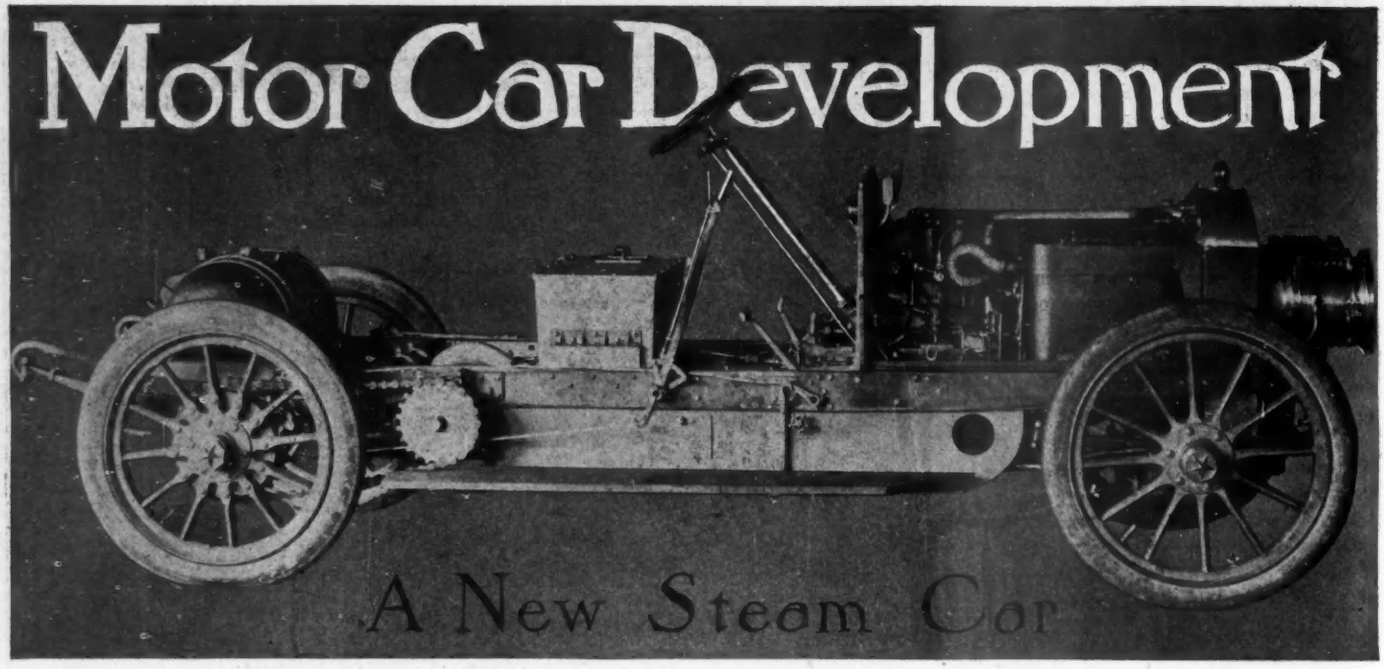
Illustrated on these pages is a Premier truck delivering a load of machinery weighing 8,900 pounds to the factory after hauling it through freight yards, over unimproved streets and over railroad crossings. The truck, regularly rated at 2 tons, has the same motor as used in the company's model 24.



AN ENCLOSED TYPE A PASSENGER VAN

RAPID MOTOR VEHICLE CO.'S CARS

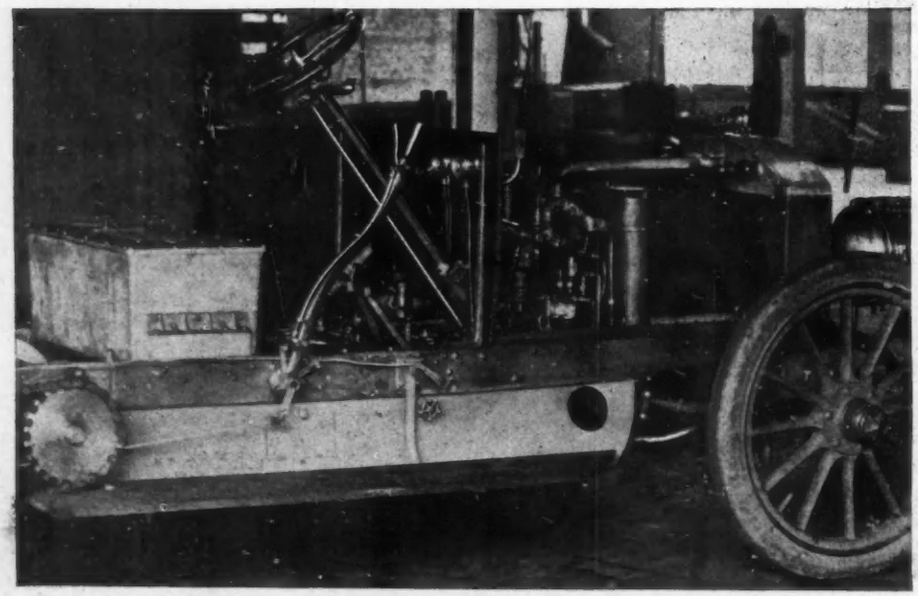
Motor Car Development



THE WEBB JAY STEAMER HAS ITS GENERATOR AND ENGINE UNDER THE BONNET

WEBB JAY, who attained international fame as the driver of a steam car on circular tracks a couple of seasons ago, has entered the manufacturing game by the organization of the Webb Jay Motor Co., Chicago, which concern is turning out the Webb Jay steamer. At present only one of these cars is completed, although several more are in course of construction in the factory. Paramount of importance in the Webb Jay steamer is the placing of the generator and motor under the bonnet and accessibly locating of several control parts of the generator and motor, so that by lifting the bonnet or the footboard of the car all of these can be reached. Also novel in steam car construction is the use of side chain drive, the method of transmission from the motor being by propeller shaft to a two-speed gearset on the jackshaft. The regulation of the water flow to the generator and the control of the gasoline flow to the burner are automatically cared for by a thermostat feed regulator and diaphragm water control.

The generator, an invention of E. de Haven Caldwell, the designer of the car, is a cubical box in length equal to the width of the car frame. When in position it is placed crosswise in the rear of the condenser. It contains 215 feet of seamless steel tubing, having a ½-inch interior diameter and a ⅛-inch wall. This tubing is arranged in six series, one above the other, and each in form resembling a series of S's partly overlapping one another, as do shingles on a roof. The water enters the end of the top series and after traversing it it passes downward into the remaining five series. When half way down it is converted into wet steam and by the time the end of the bottom series is reached it has been transformed into superheated steam, with a temperature of 600 degrees Fahrenheit. The total area of this tubing is 65 square feet, so that the generator in reality has this area of heating surface, which gives $2\frac{1}{16}$ square feet per horsepower, the official rating being 30 horsepower. The 215 feet of generator tubing does not fill the entire generator box, as shown in the chassis illustration.



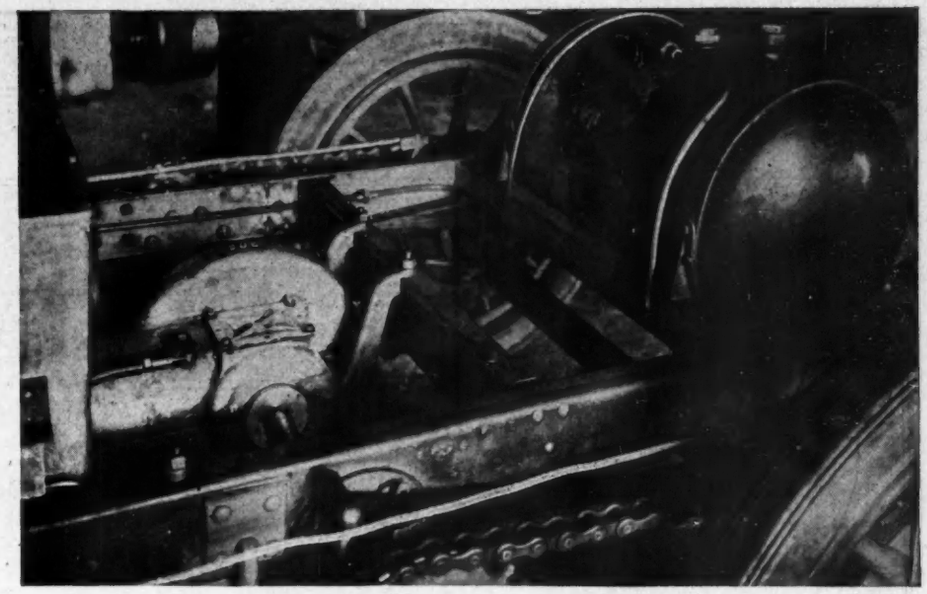
DASH AND RIGHT SIDE OF WEBB JAY MOTOR AND GENERATOR

Occupying the entire space beneath this generator is the burner, in size 24 inches cross measurement and 16 inches long measurement. In form it resembles the roofs of a large gardener's conservatory, consisting of a series of parallel ridges with many transverse slits in the tops of each, through which the vapor escapes. The course of the gasoline from a large cylindrical fuel tank on the rear of the car is through a pipe to the feed regulator, which is a needle valve under the operation of water pressure, being opened whenever water is pumped to the generator by No. 1 water pump. The fuel pipe goes to the top condenser, where it is coiled to give 8 square feet of heating surface, after which the fuel is conducted to the feed regulator; thence it goes to a coil of pipe or vaporizer over the burner, where it is transformed into vapor. This vapor then is directed to the front of the condenser, where it enters a funnel opening and passes from this through a large pipe back under the burner.

Next in importance to the gasoline flow in a steam car is the water control. On the Webb Jay car at the left of the motor are two plunger pumps designated No. 1 and No. 2, both of which are for pumping water into the generator. They are positively driven from the engine and are continually pumping water, but this water does not always go direct to the

motor, the automation of the system consisting in the diverting of parts of this flow so that the generator receives the necessary quantity. Pump No. 1 delivers its supply to the generator through the feed regulator. Pump No. 2 sends its flow through a separate piping by way of the thermostat and when the thermostat gets below a certain temperature, 600 degrees, it bypasses the water, which, instead of going to the generator, is returned to the water tank. When the thermostat gets above this temperature, 600 degrees, it cuts in this pump and sends additional water to the generator. The thermostat is a steam pipe, a part of the path of the steam from the generator to the engine, and as the heated steam passes through it expands it. One end is rigid and the other end when the tube expands acts upon a walking beam. One end of this walking beam acts on a valve for cutting in or shutting out the No. 2 pump; the other cuts out the water flow current through the flow regulator.

The engine is a two-cylinder vertical one placed between the generator and the dash and has a high-pressure cylinder with a 3-inch bore next to the dash and a low-pressure cylinder with 6-inch stroke immediately in the rear of the generator. Both cylinders have a 3½-inch stroke and the high-pressure operates at 600 pounds pressure, the other at 220 pounds pressure. The slide valves for admitting steam into the cylinders have a two-position movement; with 1-inch movement steam follows the piston 75 per cent of the stroke and with a ⅝-inch stroke steam follows the piston on 30 per cent of its travel only. Back of this slide valve in the steam chest is a protective partition which prevents the steam pressing on the rear side of the valve and increasing its friction.

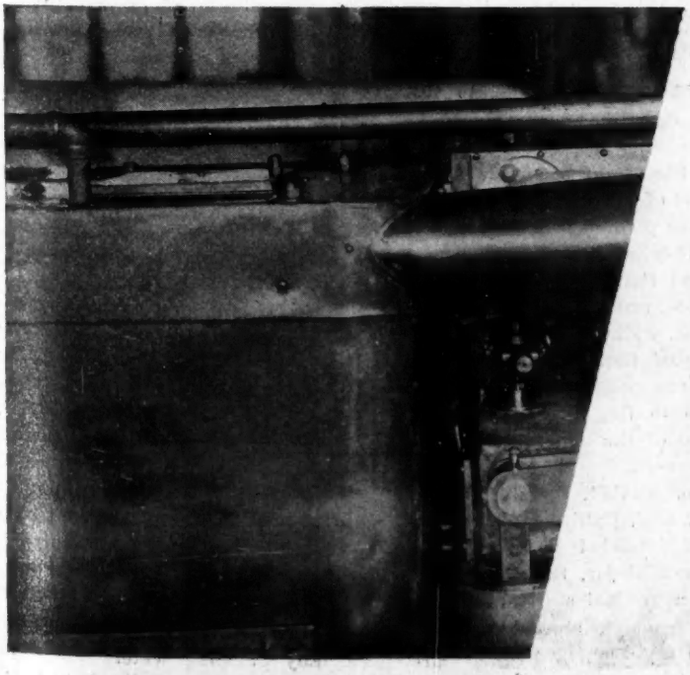


TWO-SPEED GEARSET AND DOUBLE CHAIN DRIVE OF WEBB JAY STEAMER

Viewed structurally the engine is a well-worked-out power plant. The crankshaft and all other parts are made from chrome nickel steel billets, the crankshaft being carried on four races of Hess-Bright ball bearings. These bearings are used on the lower ends of the connecting rods. Piston rods and cross heads are made in one piece and the piston clearance is reduced to $\frac{1}{16}$ inch, making a total clearance of only 8½ per cent. The thermostat and feed regulator are placed on the right side, the steam pipe with the curve conducting the steam from the generator to the thermostat, the curve or coil being to allow for the expansion of the thermostat. Placing these two important functionaries of the cont[illegible]nder the hood makes them pre-eminen[illegible] On the left side of the eng[illegible] pivoted at its center [illegible]

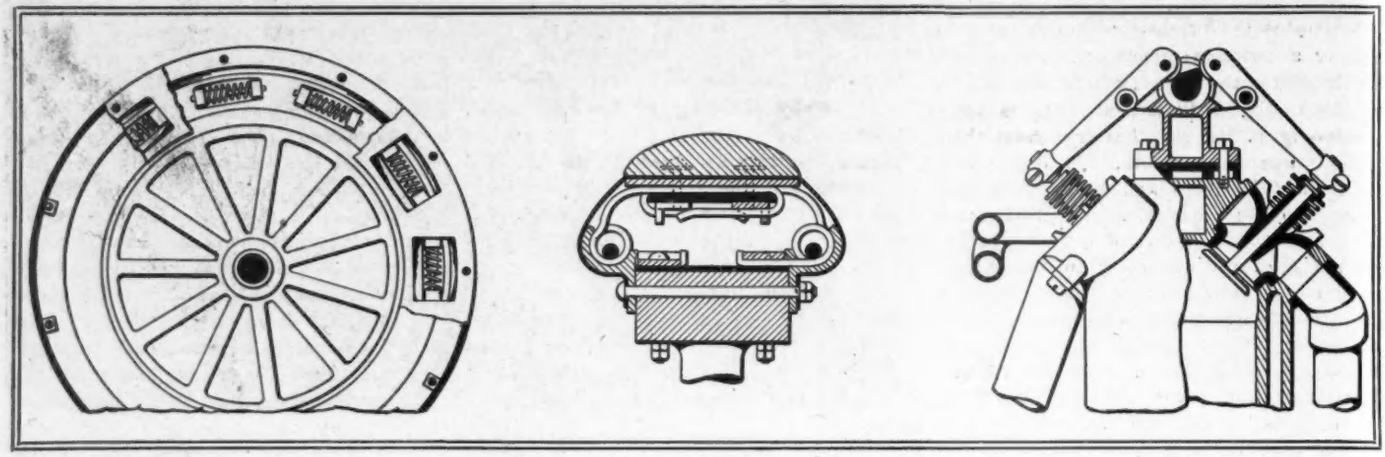
pumps, a fifth, or rear one, being the working pump which drives the other four, is driven by connecting rod from a wheel geared off the crankshaft. The forward pump is for air pressure for the gasoline feed, the second from the pump is the No. 1 water pump for delivering water to the generator, the third is the No. 2 water pump and the fourth is the condenser pump for returning the water from the condenser to the water tank.

The car control is well centralized. On top of the steering wheel is a throttle lever, moved around half the circumference of the wheel for different throttle positions; beneath the steering wheel on the column is a lever for reversing the engine and giving the different length of valve motion; in the floor is a pedal for [illegible]king the two-speed gear in the differ[illegible] and another for brakes.



GENERATOR AND LEFT

CURRENT MOTOR CAR PATENTS



HILL'S SPRING WHEEL — BUTLER'S COMBINATION SPRING AND RUBBER TIRE — WELCH VALVE ACTION

Combination Spring-Rubber Tire—No. 870,013, dated November 5; to A. W. Butler, Brockton, Mass.—The patent consists in a series of coiled springs interposed between the solid rubber tire and the wheel rim, the method of inserting them and securing the tire being as follows: The wheel rim carries removable semi-circular flanges on each side and in these rest the coiled ends of the springs, the body of which springs extend transversely of the rim and at some radial distance from it. On the transverse part of these springs is secured a flat strip, to which the solid rubber tire is secured by radial bolts and vulcanizing. The aim of the patent is to add to the resiliency of the tire by the interposed springs and in order to prevent the springs from rusting a sheet metal cover is inserted into slots in the side of the rubber tread and to cover the springs and enclose the tire flanges.

Tread Brake for Rubber Tires—No. 870,228, dated November 5; to H. F. Dietz, Liverpool, N. Y.—The brake is of the shoe type, the same as used to slip under wheels of horse-drawn vehicles when descending hills. The patent consists in the attaching of this brake shoe, ich is fastened at one end to a strap winds over a drum in front of the the side of the frame, so that ake shoe is not in use it is way on the side of the car the brake a pedal is two-fold duty of the tire and then ried around ween the

Spring Wheel—No. 870,171, dated November 5; to W. A. Hill, Callicon, N. Y. —This wheel is not intended to absorb radial but circumferential jar, the object of it being to give a gradual start without jerk, due to the quick starting of motor or the too rapid engagement of lutch. The wheel felloe has circumferential notches, in which are placed spiral springs in a circumferential plane, the ends of the springs resting against blocks within the notches but projecting sufficiently at each side to serve as an attachment for the tire. When the wheel starts rotating the quick jerk is not transmitted to the tire but absorbed by the spring.

Shock Absorber—No. 870,254, dated November 5; to W. E. Slater, San Francisco, Cal.—This shock absorber is a pneumatic device placed between the axle and a bumper carried on the car body, the bumper being directly above the axle. The axle has a cavity in its upper side which contains a pneumatic cushion, on which rests the bumper. Carried on the car is an air tank for supplying pressure to the cushion and positioned also are automatic valves that permit air to enter or escape from the cushion on the up and down movements of the car body, so that, according to the inventor, the real effect of a pneumatic is obtained.

Air-Cooling Devices—No. 869,991, dated November 5; to E. J. Stoddard, Detroit, Mich.—On the cylinder walls are circular cooling fins and alternated with these are cooling fins carried on a jacket part, the idea of the jacket fins being that they intrecept the radiant heat from the adjacent fins on the cylinder and thereby prevent one of the cylinder cooling fins from radiating heat to those next to it.

Running Gear Design—No. 869,881, dated November 5; to D. M. Dearing, Jackson, Mich.—The design referred to for a motor car running gear is intended for motor buggies in which the front axle oscillates right and left when turning corners, the same as do axles on horse-drawn vehicles. The motor and transmission are carried on a triangular frame, the base of which is the rear axle and the apex in rear of the center of the front axle. The motor is carried on the center of the crankshaft between the cylinders in case of a two-cylinder motor and between the second and third cylinders in case of a four-cylinder motor is a large friction disk. Located in the rear of the motor are two friction wheels mounted on shafts lying longitudinally of the car, one at each side. These disks bear upon the friction disk. The rear ends of the shafts carrying the disks transfer through spur gears to a single shaft communicating to the rear axle and which shaft lies centrally in the car.

Welch Valve Operation—No. 870,065, dated November 5; to A. R. Welch and F. S. Welch, Pontiac, Mich.—The explosion chamber is formed with its head in the shape of a portion of a ball or sphere, and the intake valve at one side and the exhaust valve at the other side have their stems at right angles to the surface of the combustion chamber, the valves not interrupting the contour of the combustion chamber. The opening of the valves requires the use of a camshaft lying along the heads of the cylinders and at each side of its are pivoted four rocker arms one for each cylinder, the rocker arms being so placed that the rollers on the short ends of the arms are constantly bearing upon the cam, while the long ends bear upon the end of the valve stems. These rocker arms are practically at an angle of 45 degrees to the vertical and viewed from the end of the motor are to each other at 90 degrees.

DEVELOPMENT BRIEFS

AN INGENIOUS CARBURETER

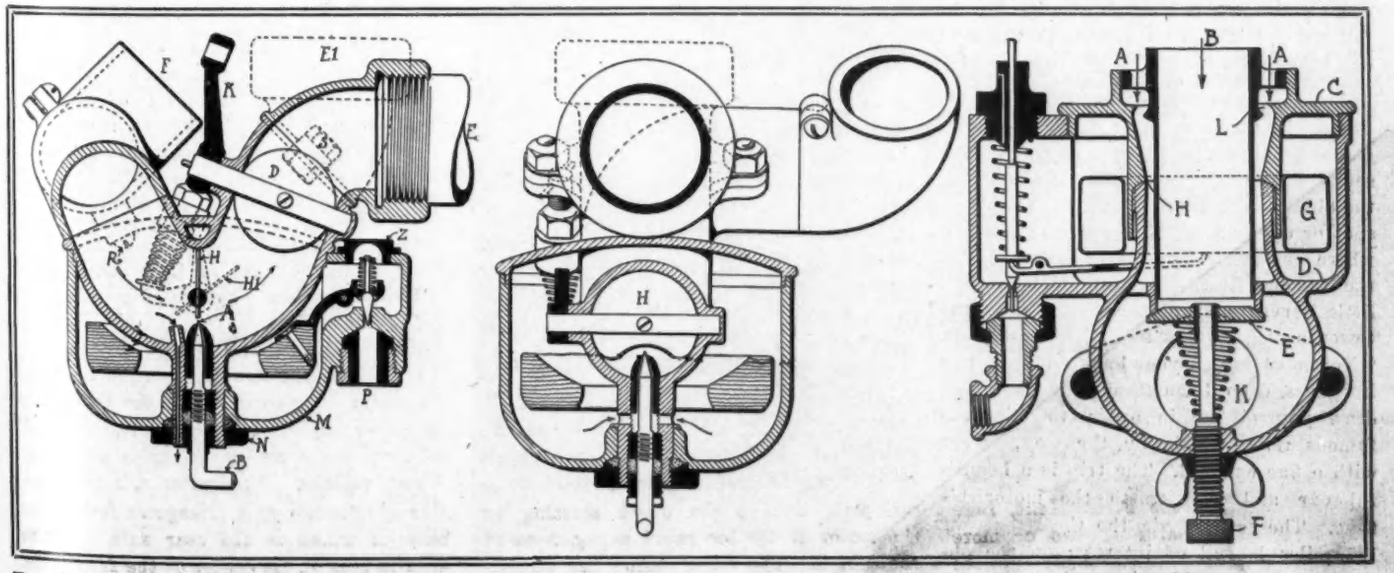
By far the most ingenious feature of the Marvel carbureter, built by the Marvel Mfg. Co., Indianapolis, Ind., is the controlling of the gasoline flow from the needle valve tip A without actually raising or lowering the needle valve, although it can be raised and lowered to arrive at fixed regulations. Air passing through the U-shaped mixing chamber in the direction of the letters C passes the butterfly throttle and escapes to the motor through the opening E and the hot or warmed air enters by way of the opening F. Directly above the needle valve tip A is a swinging damper of oval outline filling the mixing chamber but with a cut away part at the nozzle A. This damper can be swung to and fro through the handle K, which also has connection with the throttle valve D. The object of the damper H and its parts is the regulation of the fuel flow out of the nozzle A and its operation follows: With the damper vertical, as illustrated in the heavy lines, the air required by the motor must pass close to the tip of the nozzle A and a strong pulling force is exerted on the gasoline, thereby pulling out a greater percentage of gasoline in comparison with volume of air used and so giving a strong mixture. With the damper H swung to the dotted position H1, there is more room between the bottom of the damper and the nozzle A for air to pass and the pull on the gasoline is not so great, with the result that a mixture with less gasoline in comparison with air is obtained. The interconnection between the throttle D and the damper H has to be determined by running conditions. In addition to this method of regulating the flow of gasoline is that of turning the needle valve B up or down, and to do this the thread has thirty-two turns to the inch, thereby allowing of the minutest regulation.

There are two or three points in the construction of the carbureter that merit attention. First, the connection with the gasoline tank is made at P and this can be swung into any direction by loosening the lock nut N and turning the complete float chamber bowl M around until the connection P is in the desired position, after which the tightening of the locknut N secures it there. Second, by releasing the screw R the hot air connection F can be turned to any angle to suit the motor on which the carbureter is mounted; and, third, by releasing the two nuts S the engine connection E can be turned to any angle to suit the motor. This is made possible by the connection E having a wide air-tight bearing, the face being accurately ground and free from any tendency to leak, when tightly drawn together. In other respects the carbureter is conventional but made accessible in that the float chamber M can be dropped by removing the locking nut N and the adjustment of the carbureter not effected thereby. Also by removing the inspection cap Z over the needle valve it can be cleaned. E1 shows the vertical position of the connection E made possible by loosening the nuts S, as previously stated.

BROCK'S NEW CARBURETER

The Brock carbureter is without a needle valve or spraying nozzle, the gasoline feeding into the air through a slight ring opening in the side of the float chamber. Air enters through a ring opening A and flowing downward, as indicated by the arrows, passes a slit opening H in the inner side of the float chamber wall, through which the gasoline emerges. Laden with the gasoline the air continues its downward path and finally exits through the circular opening K. The size of the gasoline opening H is regulable by screwing up or down the top piece C or cover of the float chamber. The float G maintains a level approximately $\frac{1}{32}$ inch above the escape slit H and in adjusting or getting the correct size of this opening the proper course or procedure is to screw C down until it seats firmly at H and unscrew about one-eighth turn. The edge of the cap C being serrated and marked facilitates this work. All of the air needed cannot enter by the ring opening A and it finds entrance through the vertical pipe B, which is located centrally in the carbureter. The bottom of this pipe is guarded by a spring controlled poppet valve E, with adjusting screw F.

Viewed structurally the carbureter has the bottom part of the float chamber D, together with the part for uniting with the induction pipe to the motor cast integrally, thereby leaving the top part C free for adjusting the gasoline flow or for removal in case of cleaning. Viewed in this light the carbureter is very accessible. The needle valve for controlling the entrance of gasoline into the float chamber is located in an expansion in the side of the float chamber and the valve is operated through a short lever pivoted into the side of the chamber, so that a very short arm acts on the needle valve and an excessively long arm on the float, the aim being to obtain a delicate float operation and control. A. A. Brock, Chicago, Ill., is the maker.



TWO SECTIONS OF THE INGENIOUS MARVEL CARBURETER, SHOWING ITS PARTS

SECTION OF THE BROCK CARBURETER

FROM THE FOUR WINDS

Australian Record—A cable from Melbourne, Australia, says a 40-horsepower motor car made a new record for a 24-hour non-motor stop run. The machine, although handicapped by fog, ran 777 miles over the roads of Victoria in that time.

Minister Becomes Motorist—Rev. Dr. George P. Adams, pastor of Brantly Baptist church, of Baltimore, Md., has adopted the motor car for the purpose of conducting his pastoral duties. He is the second Baltimore preacher to recognize the advantage of motor cars in church work, the first being Rev. Dr. John Roach Straton, pastor of the Seventh Baptist church.

After United Action—An impetus is given to the proposed highway connecting Vancouver and points on Puget sound with San Diego, Cal., and the Mexican border. C. E. Rensberg, chairman of the committee to initiate action toward laying out and constructing this highway, reports that a letter had been sent by the committee to the commissioners of Whatcom, Skagit, Snohomish, Pierce, Thurston, Lewis, Cowlitz and Clark counties urging them to take action through their chambers of commerce, good roads clubs and other organizations for a united movement to organize the project.

Thieves in Buffalo—Motor car thieves are being run down by Superintendent of Police Regan, of Buffalo, these days. Leonard Naber was recently convicted in that city on a charge of stealing a car belonging to Hubert K. Perry. Superintendent Regan said: "I have instructed my men to get after these fellows. We have convicted one and will convict others. Many motor cars are stolen in a spirit of deviltry by young men who run them about the streets for a night and then leave them somewhere. All the motor cycle policemen are on the watch for the fellows and it will go hard with the next one we capture."

Kissing the Blarney Stone—John L. Poole, the Buick's foreign representative, who has been traveling through Ireland, sends Motor Age a photograph showing the old ruins of Blarney castle. The white spot or opening at the top of the tower is where one leans through in order to kiss the famous Blarney stone. "It takes a little nerve to be able to do this, as the tower is over 500 feet high," writes Poole. "You must lay on your back and grip two iron bars, drop down through the hole and draw yourself up in order to kiss the famous relic, which, by the way, is set with a fine emerald. The trip is a beautiful one and well worth the motorist's time. The scenery via the Cork route of 197 miles is full of interest; on the entire route many old ruins and castles are

IRELAND'S FAMOUS BLARNEY STONE

plainly in view from the road. Cork itself is of interest to the tourist, but the motor business is in far from a satisfactory condition owing, of course, to the limited number of people who are able to purchase motor cars."

Will Talk Body Building—At the meeting of the mechanical branch of the A. L. A. M., to be held during the Chicago show, the engineers are to discuss the question of bodies with a view to their standardization. Weight and length of wheel base will also come up for discussion. The purpose of it all is to bring about co-operation between the motor car and body builders. Representatives of leading body makers are scheduled to address the meeting.

State Road Planned—Joseph M. Snow, state highway commissioner of Washington, announces plans for a state road from the Idaho line, 17 miles east of Spokane, to Puget sound, thus connecting eastern and western Washington, the highway running directly westward across the Cascades. He said that the Snoqualmie pass road now under construction through the Cascades from North Bend to Easton, at a point almost directly east of Seattle crosses the mountains at a summit elevation 1,100 feet lower than the next best pass, and by being continued in a northeast direction across the Wenatchee river to Waterville could very easily be extended eastward to Spokane and thence to the Idaho line. Mr. Snow says this road across the Cascades is the most important transmountain road now under construction. The minimum grade on the eastern side of the Cascades will be 5 per cent and on the west slope 7 per cent, whereas the grades on the road in use at the present are from 15 to 20 per cent. Furthermore, no portion of the road will be subject to snowslides, and it can be traveled at all seasons of the year either by wheeled vehicles or sleighs.

Winton a Show Pioneer—At the first Chicago show, held late in September, 1900, there were three steam, four electric and five gasoline exhibits. Of these gasoline exhibitors the Winton company claims to be the only one that will exhibit at the Chicago show of 1907.

Road Problem in France—M. Barthou, French minister of public works, has just been authorized by the ministry to inaugurate an international congress in 1908 for the study of the problem of maintaining and improving high roads which have been damaged by the running of motor cars.

Starts Chauffeur's Bureau—John W. Lee, manager of the Penn Automobile Supply Co., of Philadelphia, has established a chauffeur's employment bureau in an effort to stamp out the graft evil among the wheel handlers. He already has secured the co-operation of about all the Quaker City's chauffeurs and the movement is being watched with much interest by owners throughout the city.

Tire Service at Football Game—The energy of the Continental Caoutchouc Co. was displayed at the recent Yale-Princeton game when J. N. Gilbert, the manager, arranged for a special tire depot at Reichart's Palace garage, New Haven. A full assortment of Continental tires of all kinds was ready for any of the thousand and one cars that traveled to New Haven on that day. Few motor meets have had as many machines in attendance as appeared at this famous game. In fact, New Haven on that day was a veritable Mecca for motorists for 50 miles around.

Object to Road Racing—According to information that has just reached Washington, the agrarian interests of Germany have started an agitation to restrict the fast running of motor cars in that country. The Farmers' Association of the province of Nassau, in the Frankfort district, at its recent general meeting adopted a resolution to request the convention of the United Farmers' Association of Germany to move in favor of legislative action to restrict the fast running of motor cars. The reasons assigned are as follows: "Owing to the steadily growing motor car traffic and the excessively fast pace at which these vehicles are run, serious accidents are of frequent occurrence, by which the life and property of the public is strongly endangered and actually injured. Furthermore, these risks are greatly increased by the motor car

races, which also incommode and hinder public traffic, particularly among the farming population of the districts where these races come off, by the shutting off for days of the roads over which the competing cars race."

Another Long Run—Following the recent race from Pekin to Paris the Matin, of Paris, has decided to organize a race from New York to Paris, via Chicago, Alaska, across the Bering straits, through Siberia and Russia. This information comes by press cable, no details of the scheme being given.

Clean Score for Oldsmobile—The race committee of the New Jersey Automobile and Motor Club, which had charge of the recent 24-hour endurance run, has removed the twelve points of penalization charged against J. P. Hopson, who piloted Oldsmobile No. 4, on the ground that oil had been spilled on the clutch before the start. The points in question were lost through the slipping of the clutch on the first round of the run.

Bridges Are Unsafe—It has been found that it is not only unsafe but hazardous to operate Hartford's big motor fire engines over the Edwards street railroad bridge. City engineers, after a careful inspection, have condemned the structure and the fire chief has issued orders that until further notice these 9-ton monsters which squirt a stream that will melt an 8-inch brick wall must take a roundabout course when responding to alarms in that section of the city.

Lovers' Lane in Danger—Unless Indianapolis motor enthusiasts come to the rescue, that city will likely lose its lovers' lane soon. It is a beautifully shaded drive leading to Crown Hill cemetery and is popular with motor folk. A modern paved driveway has supplanted the lane for funeral processions and the cemetery association wants to sell it as it has no particular use for it. It is feared it will be sold and built up. Recently the cemetery association offered to give the drive to the city, provided the latter would maintain it, but the park board refused to accept either the drive or conditions.

Farmers Threaten Trouble—The people of Montgomery county, Maryland, are greatly disappointed at the decision of Judge Henderson in the recent conduit road case and are alarmed over the probable results of the opinion. A number of prominent farmers have informed Mayor Garrett that they intend to continue the fight against what they claim to be the motor car abuse on the road. They take the view that if there is no law for motorists there is no law for anyone, and threaten to resort to scattering tacks and broken glass on and stretching wires across the conduit road if it should become necessary in order to prevent motor cars from running at dangerous speed thereon. Mayor Garrett stated that for 6 weeks while the case has been pending motorists have been speeding at pleasure and that Marshal Collins has been taking the numbers. "If we finally win our case," he continued, "we will haul the offenders up and make them pay the penalty."

Walked With Weston—Bert Van Tuyle, secretary of the Rochester Automobile Club, recently showed his ability as a pedestrian by walking to Buffalo from Rochester with Edward Payson Weston, the veteran walker. The motorist made the trip without any special bootwear.

After Buffalo Show Space—Several manufacturers who have never exhibited in Buffalo before are making applications for the coming show of the Automobile Club of Buffalo. The large number of applications for space being sent in by motor car makers indicates that the show is to be a big one.

Signs in Nutmeg State—All the new markers for motor cars have been issued by the secretary of state's office in accordance with the act of the last Connecticut legislature. Private owners use simply the plain marker, while dealers use the white marker and black letters followed by the initial D indicating dealer. Manufacturers use a red sign with white letters followed by the initial M. Drivers use the black sign to show at the rear of the vehicle, the letters being yellow.

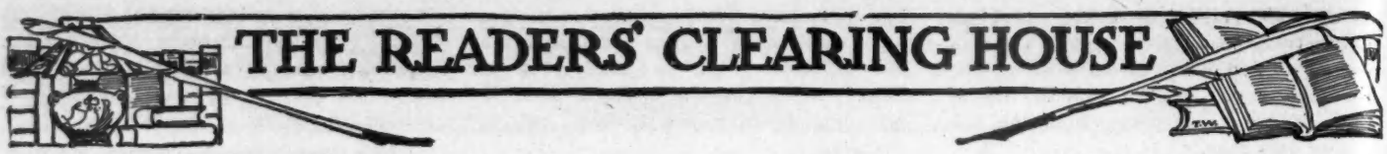
Rockefeller's Garage—John D. Rockefeller has completed his private garage at his Pocantico Hills estate. The eastern half of the stable has been turned into a garage, and it has a floor space of 100 feet square. The floor is of red cement and the walls are of white tile. In the rear of the garage is a large workroom and on the second floor are three sleeping rooms for the chauffeurs, a bathroom and a large reading room, which Mr. Rockefeller will keep supplied with the latest literature. All the upper floors are of hardwood and from the ceilings magnificent large chandeliers hang. The building cost $25,000. Mr. Rockefeller now owns three large cars and expects to buy another. He has entirely abandoned the use of horses.

Oriole Test Planned—Owners and dealers in cars in Baltimore are planning a sealed bonnet contest between Baltimore and Washington. The contest is scheduled for today. The long route will be taken from Washington to Baltimore, while the short route will be used for the return trip. A trophy will be offered for each class, the idea being to have separate classes for touring cars and runabouts.

Interesting Sea Tale—Oscar Pettengill, a motor car dealer at San Francisco, Cal., has sent to his sister, Mary F. Pettengill, of Milwaukee, a letter with a history. Before opening a garage in the Golden Gate city Mr. Pettengill was a sailor on an American warship. In 1906 he wrote a letter, placed it in a bottle and while passing the coast of Georgia threw it into the Atlantic. The letter was addressed to himself at New York. On October 18, 1907, John Engles picked up the bottle on the coast of England and sent it to the address given. When Mr. Pettengill received it he forwarded it to Milwaukee.

On a Long Tour—T. H. McDannel, assistant general passenger agent of the Chesapeake Steamship Co., of Baltimore, Md., his wife and daughter have gone on a motor car trip of 9,000 miles to the Pacific coast. On their way to the coast the tourists will stop at Atlanta, New Orleans, Houston, Galveston, El Paso and Benson. Upon reaching Los Angeles they will rest for a while before touring southern California, after which they proceed to San Francisco. From Frisco they will go to Nevada and look over the gold field districts. They will return via Salt Lake City, Denver, Kansas City, St. Louis and Chicago after a trip longer than ordinary.

MAXWELL TOURING CAR IN THE HEART OF THE CATSKILLS



ANTI-FREEZING COMPOUNDS

McKees Rocks, Pa.—Editor Motor Age—Can you inform me what the value of denatured alcohol would be in an anti-freezing mixture as compared with wood alcohol? Wood alcohol is so poisonous and in using it in the radiator the odor is so perceptible while the engine is running that I consider it safer to use the denatured alcohol if it is near the same value.—C. L. McKinnon, M. D.

Lynn, Mass.—Editor Motor Age—In issue of October 10 you give some anti-freezing mixtures and speak particularly of wood alcohol. I have used this in 40 per cent solution and found it very satisfactory excepting for the odor. Is there any objection to using denatured alcohol in place of the wood? Would this substitution change the boiling or freezing point?—E. F. B.

Toronto, Ont.—Editor Motor Age—Can you tell us the proportion of glycerine, alcohol and water that is required to make a solution that will stand, say, 10 or 15 degrees of frost and from that on down to 15 degrees below zero. Is there a tester by which one can tell the different strengths after having made the solution?—Hyslop Brothers.

Iowa Falls, Iowa—Editor Motor Age—I suppose you will be exasperated at receiving more inquiries about anti-freezing mixtures, but I have read your advice in previous issues and desire further information. I am driving a Winton model M and must have a solution sure against freezing at 20 degrees at least, and preferably more, as the thermometer is always likely to go down to that point. I do not wish to use alcohol and glycerine mixture, as a correct solution would be pretty expensive; besides, the boiling point must be low. Calcium chloride will answer the purpose if it is not injurious. In an issue about a year ago Motor Age said it affected no parts except the solder in the radiator and that if a handful of lime were added to the solution and the mixture strained its harmful effects would be removed. In recent issues, however, you seem to take a stand against its use. I want to know if the statement in regard to lime has been proven a mistake by experience, since it was made. I will not use anything which will injure the motor, but I want something which will give good results at not too great an expense. I am now using a very thin oil, which circulates as freely as water, but its low specific heat prohibits working the engine very hard. I should much appreciate any enlightenment you can give me on this very important subject.—O. H. Truman.

Denatured alcohol is a very satisfactory substitute for wood alcohol in radiators. A 25 per cent solution—1 quart alcohol to 3 quarts water—freezes at about 0 Fahrenheit, and a solution of 2½ parts alcohol to 5½ parts water freezes at 10 degrees below. The alcohol evaporates faster than the water and care must be taken not to let the solution lose strength too much. It can be tested by a hydrometer. Half wood alcohol and half glycerine as one part and water as two parts will freeze at 15 degrees below zero. The various formulae were published in Motor Age October 10. Calcium chloride is largely used, but it has corrosive effects. After using chloride the water system should be thoroughly cleaned in the spring and probably new hose will have to be put on. Wood alcohol is not pleasant, but is clean, effective and not injurious. A 40 per cent solution will prevent freezing down to about 23 degrees below zero.

ADDITIONAL WATER TANK

Greenwich, Conn.—Editor Motor Age—I am putting a 4 by 4-inch four-cylinder engine in a car made for two-cylinder engine, and wish to put in a water tank in addition to radiator now on car. Please advise what quantity of water is necessary to properly cool this size engine and send me diagram of piping, pump and radiator, the pump being set just back of the radiator and run by the end of the camshaft. Also send me a sketch of a clutch to connect transmission shaft and hollow cone-shape flywheel, the transmission shaft being square and the case set under front footboard. I want something as simple as possible, that I can make myself, as I cannot buy it for this engine.—Subscriber.

A water tank will not prevent water from evaporating if the radiator is too small for a four-cylinder engine; it will only make the supply of water last longer. Consequently the size of the tank is entirely optional. Presumably a 2 or 3-gallon tank will serve the purpose. Theoretically the best place for the tank is level with the top of the radiator, so the water from the jackets will pass first into the tank and then directly into the radiator, the object being to keep the radiator full as long as possible in spite of evaporation. From the bottom of the radiator the water should go to the pump and from the pump to the jackets on the engine. Subscriber will do well to use piping of liberal size to get as rapid circulation as possible. The correspondent gives no particulars regarding the dimensions of flywheel or the shape and dimensions of the rear end of the crankshaft, nor does he indicate what the clearances are or what can be done in the way of putting in clutch release pedals and levers. Without this information it would be useless to attempt to outline a clutch that would suit his individual requirements.

FRENCH CAR STATISTICS

Canton, Ill.—Editor Motor Age—I was much interested in the article in your current number headed "Naudin Wins in Test." No American builder has obtained more than half the efficiency shown by the test. Please publish a description of the best single-cylinder car in the test, especially of the motor. Give bore and stroke, compression, weight of flywheel, ratio of high gear, size of drive wheel and weight of car.—A. P. Gillett.

The Sizaire & Naudin is made in two models, both with 8.9 horsepower motors. In one the bore and stroke are 4⅘ by 4⅘ inches and in the other 4⅘ by 4⅘ inches. Both use splash lubrication, metal-to-metal clutches, planetary transmission, carry two passengers, have 88 inches wheelbase and in one model the wheels carry 28 by 3½-inch tires and in the other 30 by 3½ inches. The weight of one chassis is 1,344 pounds and the other is 1,368 pounds.

ARGUMENT OVER STEAM

Springfield, Mass.—Editor Motor Age—I have been very interested in the letters brought forth by my letter of September 12, and as I am not of the same opinion in all the points taken I would like to make a few exceptions. First, in relation to the prejudiced stand taken by Mr. Caldwell against compound, is that a slight allowance for leakage from the high pressure valve is made in the low pressure cylinder above such allowance and unbalance occurs. Theoretically such unbalance should not occur, but as hardly any engine is theoretically perfect some figures will show the economy derived from the use of a compound over the simple engine, both using saturated steam without superheat, as when superheat is used other factors of economy enter. A simple engine in good order will use per hour 3 pounds of steam per I. H. P., while a compound will use only 20 pounds per I. H. P., and in cases where solid piston valves are used in the high pressure valves, allowing very slight leakage, 19.25 pounds, a saving that may be used in different ways, so the evil of the unbalanced engine may be overlooked.

In regard to steam being handled, I would like to inform Mr. Harlan that in the navy, where the marine service is not heavy and continuous, but the opposite—namely, the use of light engines with high rotative speed—the high piston valve is linked up and the variable cutoff made

use of. Mr. Harlan is correct about the slide valve in the low in marine practice. A slide valve because of its construction, having the pressure on one side, tends to keep it steam tight, but when the engine is throttled the valve has to take care of condensation, which, of course, pulls down the sum total of the economy of the power plant. In a compound the shortest cutoff is one-half stroke in the high valve, and that only in rare instances, only under ideal running conditions, and as a locomotive cuts off at one-fourth the longer valve travel in the compound tends to keep its valves leaking less than the simple engine does. In regards to the sticking of D slide valves in high pressures, I am still of the same opinion as before. As the Stanley does not use any of the accepted valve gears, but rather a direct drive, which to me looks as if there was excessive pressure from the valves, as they sacrifice all advantages of economy resulting from the variable cutoff for the more powerful pull of the direct motion. With improvements in piston valves, such as locking rings against too great expansion and the semi-plug, the objections, as per example, are overcome and we have a balanced valve as against a balanced slide in which the pressure is rarely relieved over 45 per cent.

To determine the leakage of piston valves a committee was appointed by the Master Mechanics' Association and it found after exhaustive tests that the best piston leaked 268. pounds per hour, the best slide 348. pounds per hour, the worst slide 2,610 pounds and the worst piston 2,880 pounds. In conclusion it writes: "Conclusions derived from these tests do not seem to favor either type. If both kinds of valves were given equal attention the piston valve would be the better as regards leakage around the packing rings." As the committee gave its time and attention to the subject, I think it is better able to judge than any of us, so suggest that Mr. Von Berg beg the privilege of handling the scoop on two locomotives doing similar work save as to valves. After counting the scoops fed he comes to a different conclusion than that cited above. I know that the editor of Motor Age will gladly forward any letter to me which I will gladly give to the committee.—C. F. M.

FROM A STEAM ADVOCATE

Sacramento, Cal.—Editor Motor Age—In Motor Age of October 24 I notice an answer to my defense of the slide valve and would like to correct a wrong impression. My delay in answering is due to lateness of Motor Age's arrival and my duties. The question I asked was in regard to the behavior of the piston valve in the high pressure valve chamber of the 1907 White steamer. My familiarity with the piston valve in other motive plants prompted it, hence my question. The point I made in regard to a similarity of motor action between the steamer engine and the up-to-date locomotive as stated in my former letter and contradicted by Mr. Goshea in the issue of October 24, I must still stand by. He states that they are not equal in the differences in steam pressure, speed and usage. As regards steam pressure, they are different, I admit, but a pencil and paper used will show in favor of the small unbalanced motor car valves at high pressure as against the big area locomotive valves at 200 pounds pressure. Furthermore, the locomotive does not have 700-degree oil at $1 per gallon to work with, nor is there a trunk line in the United States that furnishes its largest, fastest and hardest-worked engines with oil at anywhere near that figure. Furthermore, the oil they do receive is cut down to the lowest point—far lower than is good for them. The expense would be too great. I fed a lubricator 2 pints of 700-degree Harris superheated oil to a big Pacific type passenger engine here over a 299-mile division and it nearly had a fit before I got in; in fact, it has not gotten over it yet. The cylinder lubricating oil used in locomotives does not even compare with transmission case oil. As regards speed, a further use of pencil and paper will answer all needs. In comparing a big passenger locomotive with 22 by 30-inch cylinders and 84-inch wheels to the White steamer with 3 and 6 by 4½-inch cylinders geared at a two-to-one reduction to 36-inch wheels and both at 60 miles per hour, we find a piston speed of 1,200 feet per minute in the locomotive and 840 feet per minute in the steamer. The speed comparison is probably absurd at a mile per minute, for it is always used in the locomotive at sustained speed and never or seldom approached with a motor car, thus favoring the motor car. As regards usage, I can only stand on my active service with both. Both are used and controlled by varying loads and speeds by throttle, reverse lever and brakes. Their services and demands are identical, therefore everything favors the motor car motors, which are worked under ideal conditions. Mr. Con Berg on October 31 should not hold such views regarding the unpopularity of the steam cars. Facts do not prove it. The White company builds more high-priced cars than any other motor car manufacturer in the United States and sells them, too. Mr. Stanley sells his entire output without a cent of advertising. I do not uphold him in this, but the fact still remains that the merits of the cars sell them. The Johnston and Lane sell their outputs and to these few are due the ability of steamers to hold their own against all comers. A perusal of competitive affairs will be sufficient argument and the end is not yet, either. I wish to extend many thanks to Motor Age for its courtesy to a steam advocate who is impressed by its fairness to this much-abused motive power, something which has not been shown by other publications, whose every effort has been to class steamers as freaks and belittle their hard-earned victories. Your policy has earned you many a subscription that I know of. Honor to whom honor is due and where real merit appears, the least we all can do is to foster it in any line.—W. R. Harlan.

REGARDING MOTOR BUGGIES

Union Bridge, Md.—Editor Motor Age—Please state through the Readers' Clearing House the name and address of firms which manufacture buggy type motor cars from individual drawings, that is, made to order. Is the Federal Automobile Co. of Chicago in business yet?—Ark.

It is not likely that any of the regular manufacturers of buggy type motor cars would consent to build special vehicles from customers' drawings. There are various good machine shops which will undertake this sort of work and you might write to the Garvin Machine Co., Spring and Varick streets, New York city, or to the Crane & Whitman Co., 94 West Seventh street, Bayonne, N. J. The last Motor Age heard of the Federal company it was located in the Monadnock building, Chicago.

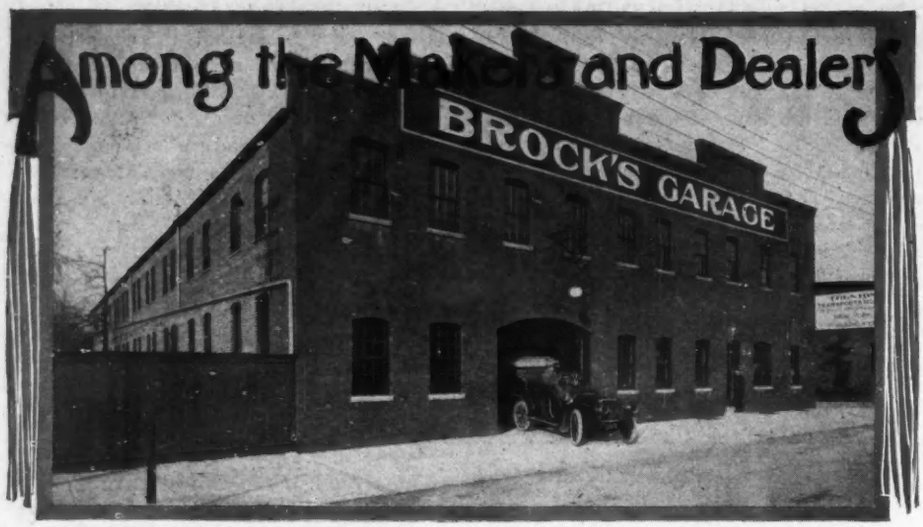
RUBBER PRICES FALL

Akron, O.—Editor Motor Age—It may be of interest to your readers to know that crude rubber today is selling at 35 cents per pound less than a year ago today. This is the lowest price at which rubber has been sold since November and December, 1903. The reduction in the price of crude rubber—we speak only of the best grades of up river fine Para—will undoubtedly cause a reduction of price of tires and all other rubber goods in which large quantities of fine Para are used in their manufacture. Owing to this reduction the Swinehart Clincher Tire & Rubber Co. has already announced a reduction in the price of tires, to take immediate effect.—Swinehart Clincher Tire & Rubber Co.

SELF-STARTING DEVICES

El Paso, Texas—Editor Motor Age—Can you inform me as to whom I should address in order to purchase an attachment for starting my Pope-Toledo type seven car without using the crank? Some of the motorists here have seen some of the spring type used with considerable success, but they do not know where they are purchased.—Rev. Frank Whiting.

Motor Age answered similar questions relating to self-starting devices in its issue of October 24, giving all the information it possessed.



BROCK'S NEW TWO-STORY BRICK GARAGE, LOCATED IN TRENTON, N. J.

Mora Men Move—Cimiotti Brothers, New York agents for the Mora, are now located in their new salesroom at 1841 Broadway.

E. R. Thomas on Vacation—E. R. Thomas, of Buffalo, has gone to Charleston, S. C., for a fortnight's rest to recuperate from his recent illness.

Adds to Line—In addition to the Crawford car, the Rice garage, which recently opened up in Baltimore, now has the agencies in that city for the Pennsylvania, Welch and Rauch & Lang cars.

Assistant for Harbridge—James H. Gilbert, formerly with the B. F. Goodrich Co., has joined the Michelin Tire Co. forces as assistant manager to C. C. Harbridge, of the Chicago branch.

Die Casters Will Move—The American Die Casting Co., of Indianapolis, will remove shortly to its own building, Gardner lane and White river, with a greatly increased capacity for the making of die castings of all white bearing metals on the market.

Holds Private Show—The Matheson people have established an agency in Baltimore at 1002 Morton street. J. J. Mason is in charge of the place. A private show of the Matheson chassis, which was scheduled to be held in the tea room of the Belvidere in that city, was given at the show building instead, because of the doorway of the tea room being too narrow to admit the car.

Selling Three Outputs—With the opening of an office in Minneapolis last week by P. D. Stubbs it is stated that the output of three local factories are to be distributed next season by the American Motor Car Sales Co., of New York. Mr. Stubbs represents this concern. Instead of maintaining separate sales departments the Marion Motor Car Co., American Motor Car Co. and the Overland Automobile Co. will distribute their entire outputs through the New York concern. Temporarily Mr. Stubbs has taken office room with the H. T. Hearsey Vehicle Co., 111-117 East Market street, which has taken the 1908 state agencies for the Marion and Overland. The latter line has been handled in Indianapolis this season by the Capital Automobile Co.

Sells His Interest—C. R. Johnson has disposed of his interest in the Buick-Johnson Automobile Co., of Grand Rapids, to George Waller, who has been associated with him in the company.

Part of Austin Equipment—The Austin Automobile Co., of Grand Rapids, Mich., calls attention to the fact that shock absorbers on all four wheels are part of the regular equipment of the Austin six-cylinder, a statement occasioned by reference in Motor Age to six-cylinders at the recent palace show, in which it was stated that the Marmon, Frontenac and Stoddard-Dayton were the only sixes including shock absorbers in their regular equipment for the coming season.

Milwaukee's New Store—The McDuffee Automobile Co., of 137-139-141-143 Eighth street, Milwaukee, Wis., is in its new building, which is a two-story, solid brick fireproof construction. The floor space is 70 by 150 feet. The salesroom, occupying the front of the building facing Eighth street, has a frontage of over 70 feet. The office and salesroom is artistically decorated with a continuous landscape of five motor cars in a race, done in oil painting. Between this salesroom and the garage proper is the stockroom of parts and accessories. The garage proper is a large open room, 70 by 85 feet, having light on three sides. The entire walls and ceiling are painted white; the floor being of cement and sloping very slightly to the catch basin and wash rack which is in the center of the floor. At the left of the garage is an oil house. Near the driveway is a chauffeurs' room. Arranged in convenient places around the walls of this room are thirty-seven lockers large enough to accommodate a 36-inch casing and the necessary robes, coats, etc., which generally go to make up the motorists' equipment. In the rear of the building, separated from the garage by a moving partition, is a repair shop. The entire building is lighted by gas and electric light and is heated by a steam plant located in the basement.

Hathaway Dolson Receiver — Judge Knappen, of Grand Rapids, has made an order in the United States court appointing C. Roy Hathaway, of Charlotte, custodian of the affairs of the Dolson Automobile Co. He is ordered to file a bond of $50,000.

Byrne in New Place—T. F. Byrne, formerly manager of the Franklin branch in Chicago, has assumed the same position with the Eastern Automobile Co., of Montreal, agent for the Packard, Maxwell, Clement and Napier cars, also distributor of Diamond tires.

Handling the Maxwell—Another new concern to open up in Baltimore is the Lambert Automobile Co., which has taken the agency of the Maxwell. L. E. Lambert, the head of the company, and his brothers are mechanical geniuses and have a working plant and garage at Roland park, just outside the limits of the city of Baltimore.

New Agents for Continental—Joseph N. Gilbert, general manager of the Continental Company, announces that two more distributing agencies have been secured. The Plant Rubber Co., of 321 First avenue N., Minneapolis, Minn., will cover Minnesota, South Dakota, North Dakota, Montana and Wyoming, while the Neustadt Auto and Supply Co., of 3948 Olive street, St. Louis, Mo., will act as distributing agent for eastern Missouri, Oklahoma, Arkansas and Indian territory.

Northern News—The Northern Motor Car Co. will be represented on the road for the season of 1908 by the following salesmen: John W. Swan, Pacific coast; L. E. Wood, middle west; James H. Foster, Ohio and Indiana; A. G. Williams, east, including New England; J. L. Sternberg, west. Among the agents signed up with the Northern Motor Car Co. are: Copeland & Taylor, Pontiac, Ill.; C. W. Evans, Dixon, Ill.; Noah Keeler, Wallace, N. Y.; A. H. Ritter, Iola, Kan.; Enid Auto Co., Enid, Okla.; Wilson Auto Co., Wichita, Kan.; Huron Auto and Electric Co., Port Huron, Mich.

Now President Chalmers—A most notable newcomer in the ranks of the manufacturers of motor cars is Hugh Chalmers, formerly vice-president and general manager of the National Cash Register Co., of Dayton, O., who has allied himself with the E. R. Thomas Detroit Co. He has purchased a heavy stock interest and becomes president of the company. E. R. Thomas, of Buffalo, retains his stock holdings and his membership on the board of directors, and in no way loses his identity with the organization. The product will continue to be marketed by the E. R. Thomas Motor Co., of Buffalo. Mr. Chal-

mers had a great deal to do with the building up of the selling organization of the National Cash Register Co.

Caswell With Moon—Louis R. Caswell, of New York, a veteran in the trade, has been made sales manager of the Moon Motor Car Co., with headquarters at the factory in St. Louis.

Buick in Baltimore—The Mar-Del Mobile Co., R. W. J. Hamill, manager, has taken on the Baltimore agency for the Buick. In contradiction to the many statements that the tight condition of money market has caused a general stagnation in the motor car busines, Mr. Hamill and others of the Mar-Del company claim that they can not get enough cars to supply their demand.

Bergdolls Take the Imperial—The Bergdoll Motor Co., of Philadelphia, which is building a big three-story garage and salesrooms at Broad and Wood streets, has just closed a deal whereby it will represent in the Quaker City and adjacent territory the Imperial cars. The Bergdolls already handle the Welch and the Benz, a German car. Joseph L. Keir, a local tire dealer and agent for the Renault, will manage the affairs of the new company. The new building of the concern will be ready for occupancy about January 1.

May Sell Federal Plant—Colonel George Pope, of the Pope Mfg. Co., of Hartford, Conn., verifies the report that the Pope company had received an offer of $77,000 for the Federal company's plant in Milwaukee, and that negotiations have been in progress for some time. The receivers have petitioned the New Jersey courts for the permission they desire. The Federal Mfg. Co. is owned entirely by the Pope Mfg. Co. The offer comes from the A. O. Smith Co., of Milwaukee, the present occupant of the plant. It is thought by Hartford stockholders that the plant will be sold. Likewise it is reported from time to time that the Hartford plant will find a quick buyer.

All the Necessities—The Indianapolis Motor Car Co., of Indianapolis, organized only a few months ago, has let the contract for a three-story concrete structure, which it will occupy exclusively as a sales room and garage. It will cost approximately $8,500 and will be equipped with pits, wash racks, teeter boards, a turntable, hot-air plant for drying cars, an apparatus for spraying varnish and a large line of mechanical devices necessary for repairing. It will be located at Market and New Jersey streets, near the garage of the Cadillac Automobile Co.

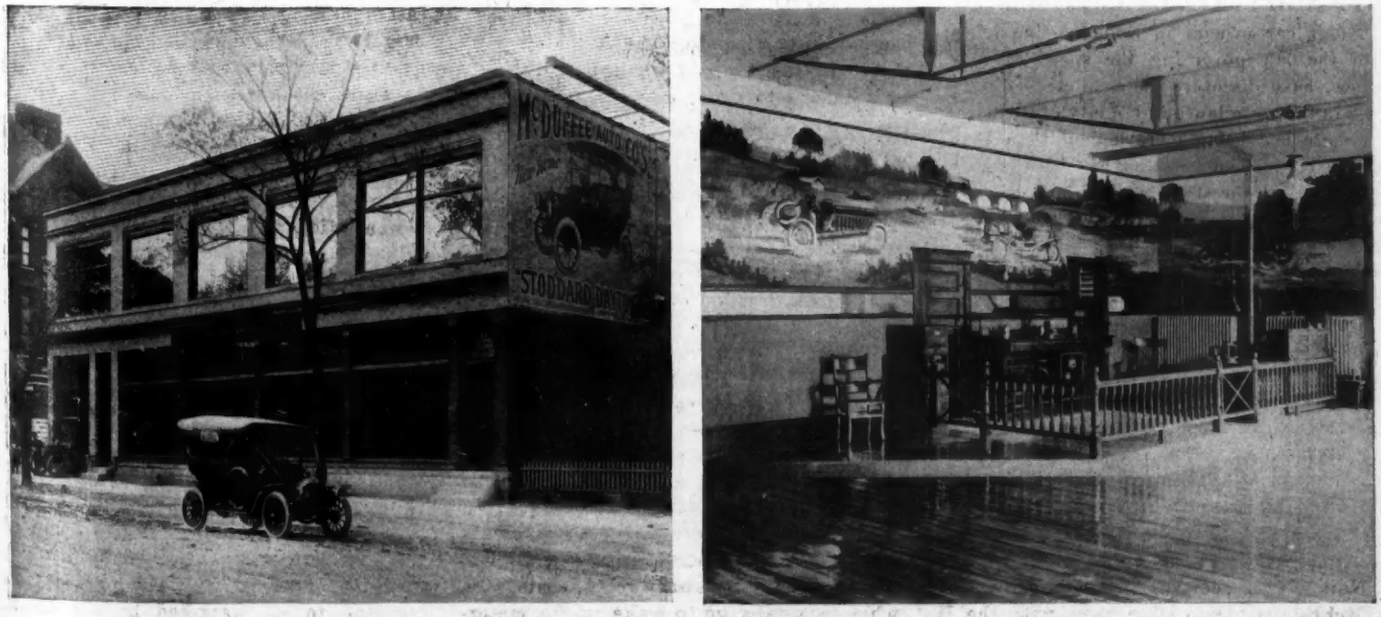
Warner's New Factory—The Warner Instrument Co., of Beloit, Wis., has moved into its new home in that city. Autometers, anometers, tachometers and railroad autometers will be manufactured on a large scale. The buildings were constructed by the Kahn system of reinforced concrete by the Trussed Concrete Steel Co., of Detroit, Mich. The main shop is 100 by 200 feet in dimensions. The roof is of the saw-tooth variety, consisting of ten rows. The interior is done in rock plaster, giving a snow-white effect. The entire shafting system, including pulleys, will also be done in white. The Warner company's object in this is to make its factory a show place and give the employes all the natural light possible. The factory will be dustless. Every particle of air entering the building will be washed. The heating and ventilating system is of the blast type. A rapidly revolving fan draws in pure air and this passes through a fine spray of water. It then passes on to be either heated or cooled, as the seasons go. The shafting system is mounted on channel iron beams fastened to special cast-iron brackets, and D. W. F. imported ball bearings are used at every bend. These reduce friction to the lowest possible point. Tests show that 100 feet of shafting, weighing 700 pounds, can be turned with the thumb and finger without a pulley.

Reese Opens Garage—The Reese Motor Car Co., headed by P. R. Reese, Jr., has opened up in Baltimore. The company has the agency for the Royal Tourist.

Dragons in Cuba—The Dragon Automobile Co. of Philadelphia, through its sales manager, A. L. Kull, has just concluded a contract with Knight & Wall to handle its cars in Cuba. This concern is a large exporter of farm implements, vehicles and hardware, with headquarters in Havana and Tampa, Fla.

Harrison in Courts—Involuntary bankruptcy proceedings have been begun against William Harrison, personally, in the United States District court at Grand Rapids, Mich. Harrison was president of the Harrison Automobile Co., whose affairs are even now in the hands of a committee of creditors. The petition is made by Frank G. Wright & Co., of Chicago, the Fourth National bank of Grand Rapids and A. B. Cline of Bluffton, Ind. The claims of the petitioners aggregate $8,204. It is claimed Harrison preferred a creditor by allowing him to obtain a justice court judgment in satisfaction of a claim he held.

New Garage in Trenton—The new garage owned by John L. Brock, situated on Canal street, just off East State street, in Trenton, N. J., is of brick, two stories high, 80 feet front, by 154 feet deep. The first floor is devoted to storage, with lockers provided for each car. An electric elevator conveys cars to the second floor, where the repair and electrical departments are located. The repair department is operated by motor and equipped with modern machinery. The electrical department for charging electric cars and ignition batteries has a capacity of sixty cars. Mr. Brock also represents several cars.



EXTERIOR AND INTERIOR OF SALESROOMS OF McDUFFEE AUTOMOBILE CO. OF MILWAUKEE

LEGAL LIGHTS AND SIDE LIGHTS

LIABILITY INSURANCE RULING

Owners of motor cars in Minnesota must assume liability for all damage done to the property of others by their machines and cannot relieve themselves of this liability by shifting it onto some casualty company. A ruling to this effect has been made by C. L. Weeks, special assistant attorney general, to Insurance Commissioner J. A. Hartigan, at the request of the latter. The commissioner made this statement in his letter to the attorney general: "Certain insurance companies which are now authorized to do a general casualty business in this state are desirous of issuing policies whereby they insure owners against legal liability in case of damage done to the property of others by their motor cars." He asked whether a policy of that nature may be legally written in Minnesota. After stating the question the answer continues: "In answer thereto I would say that it is the opinion of this office that such question should be answered in the negative. Section 1596, Revised Laws 1905, inter alia, provides as follows: 'It shall be unlawful for any insurance company, or its agent, to solicit or make contracts of insurance not authorized by the provisions of this chapter.' I have been unable to find any provision of the statutes authorizing the writing of insurance of the kind mentioned in your letter, and in the absence of such authorization it is unlawful." The chapter alluded to gives a list of twelve kinds of policies which may be issued, none of which seems to cover liability for motor car accidents, so that under this ruling the casualty companies cannot be permitted to issue such policies.

CITY AND STATE LAWS DIFFER

Motor car owners in Spokane, inquiring into the law governing the speed of machines, have discovered a conflicting difference in the state law and the city ordinances, the state law being more lenient than that of the city. The question has been raised as to whether the state law takes precedence over that of the city. James M. Geraghty, formerly corporation counsel, said: "The supreme court ruled in a case taken up from Bellingham that the city of Bellingham had a right to make a speed law not in harmony with the state law governing the speed of motor cars, while the supreme court ruled that the state law in this case was not of exclusive character." The city speed law provides that motor cars shall slow down to 4 miles an hour in crossing street intersections, that the speed shall not exceed 8 miles within the fire limit, nor 12 miles outside the fire limits. However, the police have made no arrests where machines were being driven anywhere within the city limits, unless a speed of 14 miles has been exceeded. The state law holds that a motor car cannot be run faster than 12 miles an hour within the limits in city or village, or 20 miles an hour in the country, or 4 miles an hour over crossings or crosswalks in city or town when anyone is on them. Justice of the Peace Hyde recently assessed fines ranging from $5 to $15 for exceeding the speed laws in Spokane. He said at the close of the hearing: "I give notice that if any more men are brought before me and convicted of exceeding the speed law the amount of the fines will be increased."

SUFFIELD IS SUED

William G. Forbes and wife, of East Hartford, Conn., and Francis D. Childs and Miss Mary L. Cady, of Hartford, have jointly instituted suit against the town of Suffield, Conn., for the recovery of $7,000 for injuries sustained by the party on September 15 last while en route in their car to Cape Cod. It appears there was a very deep rut in the road into which the car plunged, throwing the occupants into a brook 15 feet below. Mr. Forbes owned the car and drove it and Mr. Childs was pinned beneath it when it overturned. Mr. Forbes sues to recover $2,000, which includes the damage sustained by the car and $600 for injuries to himself. His wife sues for $3,000, alleging her arm was broken and her back wrenched. Miss Cady sues for $1,000, having suffered a broken arm, while Mr. Childs sues for $1,000 for shock sustained and also for injuries to his shoulder. The party allege that the accident would not have occurred had there been a strong rail on the bridge. The road where the accident occurred is about 10 feet wide. The suit is now pending and is the second of the season brought against the town for accidents to motor cars.

IGNORE STATE LAW

All over the state of Wisconsin trouble has resulted over the law passed at the last session of the state legislature providing for a highways commissioner for each county. The purpose of the law was to place the construction of good roads under one head and make the movement concerted. County boards, which are generally in annual session at this time, are ignoring the law, declaring it to be optional and not compulsory in spite of opinions to the contrary by W. O. Hotchkiss, chief of the highway division of the state government, and the attorney general. Although ignoring the law, many county boards are not neglecting the good roads proposition, and are appropriating freely for the furtherance of the work. In Rock county the county board of supervisors passed a resolution providing for a tax of 3-10 mill on the assessed valuation of the county for a permanent road fund. This will mean an income of nearly $15,000 annually. A system of highways will be laid out extending from the main cities into every town. At Jefferson, Wis., Arthur L. Hoard, son of the former governor, W. D. Hoard, president of the Wisconsin Good Roads Association, has been elected county highways commissioner by the Jefferson county board. National, state, county and city good roads were given a boost in Milwaukee by the visit of Horatio S. Earle, of Grand Rapids, Mich., to Mayor Becker, of Milwaukee. Both are agitators for good roads. It is hinted that both Mr. Earle and Mr. Becker expect to attain the governorship of their respective states on a good roads platform. Mr. Earle is highways commissioner of Michigan and Mr. Becker is first vice president of the Wisconsin Good Roads Association. Both are active.

FIGHTING SEARCHLIGHTS

A Manchester, Conn., motorist narrowly escaped knocking over a woman with percaped knocking over a woman with perhaps serious consequences because of the fact that just as he rounded the main street of the town an approaching trolley was making use of a brilliant electric searchlight which blinded him. He brought his car to a stop and waited for the trolley to pass him and after it had done so he noted standing about a foot from his radiator a woman, apparently dazed. She subsequently admitted that in crossing the tracks she was blinded by the light from the trolley and did not see the motor car approaching. The selectmen of the town of East Hartford have prevailed upon the trolley company to discontinue the practice and if this does not have the desired effect legal action will be resorted to. If, in this particular instance, the driver had not brought his car to a stop he would have knocked the woman down and he would of course have had to take the blame, even though he was driving on the right side of the road. An effort will be made to enact a measure in the next legislature prohibiting the use of these lights except in isolated sections where they are imperative. Some time ago the Springfield company promised the Hartford Automobile Club that when approaching motor cars were encountered the lights would be turned off, but this has not been done.